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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: XXXI

DATE: Wednesday, August 10th, 1988

BEFORE: M.I. JEFFERY, Q.C., Chairman

E. MARTEL, Member

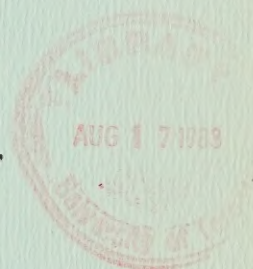
A. KOVEN, Member


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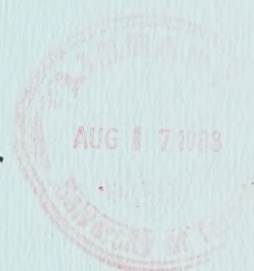
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the Ramada Prince Arthur
Hotel, 17 North Cumberland St., Thunder
Bay, Ontario, on Wednesday, August 10th, 1988,
commencing at 9:30 a.m.

VOLUME XXXI

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH)	RESOURCES
MS. K. MURPHY)	
MR. B. CAMPBELL)	MINISTRY OF ENVIRONMENT
MS. J. SEABORN)	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN)	ASSOCIATION and ONTARIO
MS. E. CRONK)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY)	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
	ANGLERS & HUNTERS
MR. D. HUNTER	NISHNAWBE-ASKI NATION
	and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. P. SANFORD)	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD)	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF
	LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA
	LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES)	ASSOCIATION
MR. R. EDWARDS)	NORTHERN ONTARIO TOURIST
MR. B. McKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD)	

APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.)	RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK)	MUNICIPAL COMMITTEE
MR. D. SCOTT)	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL)	GREAT LAKES FOREST
MR. S.M. MAKUCH)	PRODUCTS
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
MR. R. REILLY	ONTARIO METIS & ABORIGINAL ASSOCIATION
MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON

(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO
TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>JOHN EDWARD OSBORN, Recalled</u>	
<u>KENNETH A. ARMSON, Recalled</u>	
<u>DAVID GORDON, Sworn</u>	
<u>JOHN RANDOLPH CARY, Sworn</u>	5131
Continued Direct Examination by Mr. Freidin	5131

I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
142	Four-page document prepared by Dr. Osborn re: Numerical comparison between FRI 1986 (Exhibit No. 56) and Inventory for 1963 (Exhibit No. 70).	5164
143	Overhead of Diagram No. 28 (Page 249 of Witness Statement for Panel No. 4) with blue line drawn on.	5175
144	VHS Video entitled: Shaping Tomorrow's Forests.	5190
145	Overhead chart reproduced from Document No. 38.	5222

1 ---Upon commencing at 1:35 p.m.

2 THE CHAIRMAN: Good afternoon, ladies and
3 gentlemen. Be seated, please. I thank you for your
4 indulgence for the late start today.

5 It is the intention of the Board to
6 perhaps go until one o'clock and then break for lunch
7 at that time, and then perhaps sit tonight until six
8 o'clock or thereabouts to try and pick up some of the
9 time that we missed, if that is all right.

10 Is there anything further by way of
11 preliminaries, Mr. Freidin?

12 MR. FREIDIN: No.

13 THE CHAIRMAN: Anybody else?

14 (No response)

15 Very well.

16 JOHN EDWARD OSBORN,
17 KENNETH A. ARMSON,
18 JOHN RANDOLPH CARY,
 DAVID GORDON, Resumed

19 CONTINUED DIRECT EXAMINATION BY MR. FREIDIN:

20 Q. Mr. Armson, I believe when we broke
21 off yesterday you had finished describing the graphs
22 and the tables in the latter part of the SOARS Report
23 and you were just about to indicate what conclusions
24 you were able to come to based on that information, and
25 what sort of trends perhaps that you were able to

1 identify as a result of that material.

2 So perhaps you could just sort of pick up
3 at that particular point and I would ask you that you
4 deal with those matters.

5 MR. ARMSON: A. Yes. In terms of the
6 second set of tables, tabular data, there were two
7 charts in there with histograms, they were based on an
8 interpretation of the individual plot data, as I
9 believe I explained.

10 I think there were basically three
11 conclusions. One of the first, and perhaps the most
12 obvious, was the diversity of tree species that occurs
13 both of the target species, the three conifer species
14 that were involved in the planting and seeding, but
15 also of other commercial species. I think that is one
16 conclusion.

17 The second would be that although it
18 varied depending on the target species and whether
19 there was planting or seeding - and it did vary to some
20 degree with the regions - what we were looking at was
21 across-the-board in general 80 per cent of the area
22 represented by the sample came back into the inventory.

23 A portion of that, and not always the
24 majority, came back into the forest unit of the planted
25 or seeded species, but in terms of coming back into the

1 inventory, that was the proportion across-the-board.

2 Some of that would come into forest units
3 obviously quite different from those of the target
4 species, but within those areas there was the density,
5 the numbers of trees per hectare of one or other of the
6 three target species.

7 The remaining 20 per cent, roughly 20 per
8 cent - it varied again - had neither the density or the
9 height that would qualify the target species, or as
10 they are termed the desirable species for those three
11 conifers that would put it into the inventory, although
12 it might well have had other commercial species that
13 would put it into the inventory, but that was not the
14 criterion on which that was selected.

15 So that 20 per cent, some portion of that
16 not segregated out might be in the inventory, some
17 portion of that might be in the inventory in the way we
18 would describe as "barren and scattered" as described
19 by Dr. Osborn earlier in Panel 3.

20 Q. And just in relation to that matter,
21 could you just explain why you are unable to indicate
22 whether part was in or out and how much?

23 A. Because the way in which the plot
24 data was developed didn't allow it to be put in on the
25 criteria set for the inventory on that basis. It was a

1 residual lump, if you like, at the end of the plots in
2 the areas.

3 Q. And the SOARS survey, in terms of its
4 original intention, was it intended to collect
5 information which would allow you to do that?

6 A. No, that was very specifically not
7 the purpose for which it was collected and that's why
8 there was some difficulty, and no attempt was made to
9 segregate that final 20 per cent.

10 Q. Thank you. Are those the remarks
11 then that you would like to make?

12 A. Yes, those are the -- I think, the
13 simplest conclusions. There are differences between
14 species, but I don't think -- they are elaborated in
15 the report, but I don't think they are germane.

16 MR. FREIDIN: The next area then that we
17 move to, Mr. Chairman, is the section entitled
18 Regeneration Reporting which is found on pages 19 and
19 20 of the witness statement.

20 Q. And, Mr. Armson, you have the witness
21 statement, do you?

22 MR. ARMSON: A. Yes, I do.

23 Q. Could I refer you, please, to
24 paragraph 58, subparagraph (iii), which you will find
25 at the bottom of page 38. Do you have that?

1 A. Yes, I do.

2 Q. I would like to read to you a portion
3 of that particular paragraph, that's page 38, paragraph
4 58, subparagraph (iii). The third line from the
5 bottom:

6 "Except for forested land that is removed
7 from timber production by the
8 presence of permanent roads and landings,
9 virtually all areas that are harvested,
10 burned by wild fire, blown down by wind,
11 or killed by insects or disease
12 regenerate over time to commercial tree
13 species. At no time in Ontario have
14 large forest tracts 'gone out of
15 production' or remained without
16 vegetation as 'biological deserts'...."

17 Could you advise, Mr. Armson, why did you
18 decide to include that particular statement in the
19 witness statement itself, and on what basis do you
20 believe that that statement is true?

21 A. Well, that is in the witness
22 statement because I believe it represents what is
23 perhaps a very commonly understood perception of the
24 situation with regard to Ontario's forests.

25 And I would draw the Board's attention to

1 the first part of that paragraph, paragraph 58 on page
2 38 of the witness statement, where - and I think the
3 Board has had some evidence of this - the matter of
4 classification of harvested areas is described as
5 having been inconsistent and imprecise. And I would
6 like to elaborate on the reasons for that, some of
7 which I think the Board may be aware of, but I think
8 taken together they lead to why the statement that has
9 just been read in terms of paragraph 58, subsection
10 (iii) is there.

11 I think the Board is well aware from both
12 Mr. Gordon's previous evidence and that of Mr. Cary
13 that the documentation regarding, and the
14 quantification of what has happened in much of the
15 forest is, in some instances, inadequate, it has
16 certainly been inconsistent, there has been lack of
17 continuity. There has been documentation throughout,
18 but drawing it together has been difficult, if not in
19 fact almost impossible to draw together likes rather
20 than a series of likes and unlikes.

21 That in itself gives rise to I think a
22 perception that if you cannot document it because of
23 those reasons then, somehow or other, there must be
24 something wrong, and there may well be, but it gives
25 rise unfortunately to the notion that maybe there are

1 not trees out there.

2 The second point, and that relates to one
3 that we have discussed and certainly arose in Panel 3
4 as well as this panel, and that is the matter of words
5 and terminology, the description of conditions often
6 using words, common English words, which have either a
7 very precise meaning and a consistent one or a precise
8 meaning and an inconsistent one. And the example that
9 I would draw the Board's attention to is actually in
10 Panel 3 when Dr. Osborn was describing the use of the
11 word normal in normal forest as contrasted with normal
12 in normal yield tables.

13 Now, there have been many other examples
14 of that. Mr. Martel asked a question about the use of
15 the word or the term NSR, and that is not
16 satisfactorily regenerated, in a survey where there is
17 a category that in fact is not only regenerated
18 satisfactorily but free to grow. These are the kinds
19 of things that give rise to misunderstanding and
20 perceptions that perhaps are misleading.

21 Sometimes when the word is used the
22 meaning may be relatively clear but the context in
23 which it is being used -- and I will come to an example
24 of that in a few moments. So that the whole question
25 of description, documentation and description, I think

1 gives rise to uncertainty certainly in the minds and
2 understanding of others, and even within the forestry
3 profession itself.

4 The third point, and this I think is a key
5 one, is that in the entry into the boreal forest,
6 particularly in terms of silvicultural treatments - I
7 am not speaking now so much of harvesting - there has
8 been both generally and, in many instances within the
9 profession, a lack of understanding of the dynamics of
10 the forest development.

11 To some degree, the areas that have been
12 harvested have been viewed in the context of areas
13 elsewhere that were harvested and where a set of
14 circumstances then followed.

15 You may recall in Panel 2 that in
16 discussing the development of regeneration in southern
17 Ontario I showed an exhibit, a slide of an area of
18 "wasteland", that was the description. It was a sandy
19 soils that supported forest, primarily white and red
20 pine forest, it had been cut, it had then been cleared,
21 burned, farmed, razed and so on.

22 There was, in this case, residual stumps
23 left and there was a gap between obviously the height
24 of the ground when the trees were growing and these
25 were obviously eroded, very, very seriously eroded

1 areas that have been reforested.

2 So there becomes then the relationship of
3 putting together of stumps, wasteland, and if you have
4 stumps in the boreal setting, then presumably such
5 similar kinds of things can happen. I am not
6 suggesting they can't, but in fact the evidence, if you
7 watch those areas over time, is that vegetation
8 regrows, the forest floor for the most part is not
9 disturbed, and that was an essential ingredient of the
10 leading to erosion in southern Ontario.

11 But there is a putting together of a
12 juxtapositioning, if you will, of an action cutting
13 timber with a subsequent result but in a different
14 context and within the same province, let alone some
15 people relating it to forest conditions elsewhere off
16 this continent. So that time factor in terms of
17 development.

18 We are - and I think the point was made
19 in terms of the SOARS data that those plots have
20 enabled us to at least pick up the very short period of
21 what some of those changes have been and there have
22 been other individual studies.

23 What this has done, the combination of
24 the inadequate or inconsistent documentation, imprecise
25 or wrong use of terminology, the setting of a

1 perception or view of a situation and relating it to
2 another - the same kind of activity but in other
3 context - I think inevitably gave rise both within the
4 forestry sector, and there are many people there and
5 also outside - and this is particularly important in
6 the public and political arena - that there were
7 problems associated with it, and I am not suggesting
8 there aren't problems, but there were problems that
9 perhaps could be solved by relatively simple solutions.
10 And the best example I could give you is the notion
11 that if you clear cut an area, the single most
12 important thing to do is get back and plant trees on
13 it.

14 We know, as you have seen from the SOARS
15 data, that those areas that we have planted and seeded
16 come back profusely to other commercial tree species.
17 We may or may not achieve the forest we wanted, but it
18 has come back to a new forest.

19 As I say, this simplistic solution has
20 given rise to decisions, it has given rise to
21 perceptions and indeed even catch phrases such as if
22 one tree is cut then two trees must be planted. And
23 these all add to and furnish the sense that there is a
24 major problem out there, that there is "a desert", an
25 area that somehow or other we have got to get to and

1 put green trees on it immediately. And that, I would
2 suggest, gives rise to what in effect are myths,
3 therefore, and the myths become, by repetition,
4 "generally believed truths".

5 So we have this kind of a movement going
6 on and that then tends to move to decision-making in a
7 way that perhaps is unrelated to the realities of the
8 situation. I think that is the background towards why
9 that section in there dealt with "biological deserts"
10 and this type.

11 MRS. KOVEN: I have two questions, Mr.
12 Armson

13 MR. ARMSON: Yes, Ms. Koven?

14 MRS. KOVEN: The first one is: If in
15 fact -- let us assume that the forest will regenerate
16 itself at some point, as you have just said here, to
17 what extent to you attribute silvicultural treatment as
18 being a factor in that?

19 If you weren't doing anything with boreal
20 forests, what would have been the outcome of the last
21 20 years?

22 MR. ARMSON: Well, if we go back, if we
23 go back to the areas that were cut, for example, in the
24 late -- or the early 1900s, 1920s particularly, many
25 areas -- the Dryden area is one because the mill was

1 put in there and they were cutting wood in late 1918,
2 1920 in there. There are a number of areas where mills
3 were cutting wood at that time and many of those areas,
4 when we look at them now, we see "a forest".

5 Now, in some instances -- in most of the
6 instances, because of the nature of the conditions, the
7 way in which it was done, the time, the season, the
8 intensity of what was done, the cutting was perhaps --
9 created a set of conditions that predisposed it to come
10 back into the main, in many instances, to the species
11 that were there.

12 Black spruce in the clay belt is probably
13 the -- but in other instances it didn't, it came back
14 to balsam fir, tamarack on the wetter sites, came back
15 to poplar and birch in many other areas, but it came
16 back to a forest of "commercial tree species". So
17 that's the evidence that we see.

18 MRS. KOVEN: So are you saying that you
19 have two primary reasons for doing silvicultural
20 treatment, one being in response to public perception
21 that something should be done, and the second to focus
22 silvicultural treatment on producing commercially
23 viable forests as opposed to returning forests to the
24 state that they were in before?

25 MR. ARMSON: That's right. The purpose

1 of the silvicultural treatments, in terms of providing
2 for what is the purpose of this undertaking, then is to
3 focus, what is an investment, on the areas on the
4 species and on the kinds of forests that then as best
5 can be perceived will sustain that industry in a viable
6 economic position and, therefore, the economy
7 associated with it. And that means becoming selective
8 in where you do things and the intensity to which you
9 do it.

10 And I think in terms -- again in a
11 previous panel, the questions about the definition of
12 the land base, the identification of areas, we have
13 used the term prime site or prime land, but where are
14 the areas where we should focus, and the stands, that
15 we should focus on those investments.

16 We know that generally out there it will
17 revegetate over time and the time factor then becomes
18 an important one. If we are making an investment to
19 produce jack pine or black spruce or whatever by
20 seeding or planting, then that investment should be one
21 which will attain what objective we have, the
22 management objective to produce that stand in as short
23 a time as possible.

24 MRS. KOVEN: Have you ever regenerated
25 forests for which there was no commercial value for

1 other reasons, in terms of the conservation of
2 non-timber values?

3 MR. ARMSON: Well, we do that in certain
4 areas, yes and really the regeneration -- I am thinking
5 primarily in southern Ontario, because here the forest
6 does come back. Could we in fact intensify our efforts
7 on very specific areas for non-timber values?

8 My answer would be yes, and I made that
9 point I believe in my report in 1976, that there is in
10 fact a valid reason to practice silviculture in
11 specified areas where the objective is for primarily
12 non-timber values.

13 But I would point out that in doing that
14 it is almost inevitable that you are going to cut trees
15 and extract some timber. And there are classic
16 examples throughout Europe of municipal forests that
17 are there for recreation, and I have seen them with my
18 own eyes, the skidways of logs are also there. And I
19 think that that's the multiple aspect. But the purpose
20 of the management is for the other use not to produce
21 timber, that's a byproduct.

22 MRS. KOVEN: But given the financial
23 constraints that MNR might experience, in fact the
24 financial impetus is to regenerate forests for
25 commercial use?

1 MR. ARMSON: In this area of the
2 undertaking, yes. And that raises then the question
3 of, if you like, the whole matter of other uses and the
4 funding and so on for that type of silviculture.

5 THE CHAIRMAN: But surely, Mr. Armson, in
6 say a provincial park, if it had been devastated by an
7 insect infestation or a forest fire, would not the
8 Ministry come in and try and regenerate that much
9 quicker through silvicultural planting or seeding or
10 something like that when knowing full well that it is
11 entirely for recreational purposes or other than
12 commercial timber?

13 MR. ARMSON: Certainly. Within a park, I
14 don't think, and I believe in an earlier panel they
15 talked about vegetation management, I think this is
16 something that is most important, and we do do that as
17 a Ministry.

18 What I am really saying is where you
19 define areas for non-timber uses outside of the park,
20 in these other areas, then the question comes: If it
21 is at a cost, then obviously something has to give
22 somewhere.

23 MR. MARTEL: Could I ask a question?

24 MR. ARMSON: Yes, Mr. Martel.

25 MR. MARTEL: Because in having read

1 Armson's Report on three or four occasions it certainly
2 indicated to me that there was more of a concern than,
3 at least I - maybe I misread the whole document the
4 three or four times I read it - but surely it indicated
5 a concern not just based on public hysteria leading to
6 simplistic solutions but, in fact, provided the impetus
7 to move ahead in everything we were doing in terms of
8 hiring foresters, establishing what was going on out
9 there.

10 I mean, if we had left the system go the
11 way it was prior to, let's say, 1975, where would we be
12 today?

13 MR. ARMSON: Well, I think there have
14 been many improvements and I think that in Panel 2 --
15 long before the "Armson Report" there were improvements
16 and there was forestry being practised, but it was
17 the -- these have all been incremental and I think - as
18 was pointed out by Mr. Cary - outside reports, whether
19 it be one of mine or somebody, they tend to in fact
20 provide for a refocusing on really activities or the
21 general area of activities and upgrading.

22 I don't think, Mr. Martel, that public
23 hysteria in any way was related. I hadn't noticed
24 public hysteria particularly in relation to forest as
25 such. There have been expressed public concerns, and I

1 think quite legitimate. What I am saying is many of
2 those concerns have reflected these factors of
3 misunderstanding, not because the people have been
4 incapable, because of the way in which portrayals have
5 been made in documentation, words and so on.

6 It is difficult, and I think that's an
7 area that bears some considerable attention. But my
8 report certainly wasn't based or reflecting that public
9 concern, it was done from the standpoint of the --
10 basically the forestry activity and the professionals
11 and technical people operating within that.

12 THE CHAIRMAN: Would you consider it to
13 be a purpose of this hearing as well to dispel some of
14 these myths?

15 MR. ARMSON: I would believe that in the
16 presentation of the evidence and in the
17 cross-examination associated with it, that the
18 dispelling of myths would be a very productive and
19 positive aspect, if in truly they are there. I am
20 suggesting that some of these are there and that's why
21 the statement in the evidence was made to focus that.

22 MR. FREIDIN: Q. Mr. Armson, I
23 understand that you would like to sort of refer to some
24 specific words or phrases and their use which, in your
25 view, has in fact had a role to play in creating the

1 misconceptions?

2 MR. ARMSON: A. Yes, I would draw the
3 Board's attention to page 249 in the evidence, and that
4 is Document No. 28. And this, I would suggest,
5 illustrates some of the points that I have been making.

6 First of all, it is a graph in which is
7 quantified the area in hectares --

8 Q. I am sorry, this is Document 28?

9 A. Document 28.

10 Q. Page 249?

11 A. Page 249. It is based on the
12 statistics, the published statistics of the Ministry of
13 Natural Resources and it comprises the areas in
14 hectares that have been harvest cut and the areas in
15 hectares on an annual, this is on an annual basis, that
16 have been subject to a regeneration treatment from the
17 year 1974 to the year 1986.

18 And I would point out to the Board that
19 the term "regeneration treatment" covers those
20 activities described earlier in this panel by Mr. Cary;
21 that is the areas that were subject to artificial...

22 THE CHAIRMAN: They are coming to get
23 you, Mr. Armson, they did not like what you just said.

24 MR. ARMSON: I give up.

25 MR. CARY: The culprit was elsewhere, Mr.

1 Chairman.

2 MR. ARMSON: The regeneration treatments
3 here comprised those activities described by Mr. Cary
4 in the chart and that was, I believe, Exhibit 13.

5 MR. FREIDIN: Q. 137.

6 MR. ARMSON: A. 137. That is the
7 artificial treatments of planting and seeding, together
8 with the other activities under modified harvest
9 cutting and that might include then scarification.
10 Those were the actions. In other words, they were
11 activities where, in effect, an investment was made to
12 achieve some desired kind of regeneration.

13 If that graph is looked at there are two
14 quantifiable facts only: The area that received
15 treatment and the area that was harvest cut in the same
16 year.

17 In actual fact, and there a number of
18 situations in which the difference between the level of
19 regeneration treatment and the level of harvest cut has
20 been perceived as - and the term that has been used
21 is - regeneration gap. Now, the implication in using
22 that term is that somehow or other there is a
23 significant difference and that the area that is not
24 treated is "not regenerated"; that is, if you look at
25 this graph in a simplistic term and describe that space

1 inbetween as regeneration gap.

2 That is, I think, a simple illustration
3 of how, from two pieces of quantifiable information,
4 you put in a term called regeneration gap and people
5 draw different conclusions, one of which is: We have
6 got to close the gap.

7 The second illustration is somewhat
8 related to this. We have used, and the Board has heard
9 the terms treatable and untreatable. We have talked
10 about, and foresters have talked about and, in fact,
11 documented in terms of a dimension, an area, areas
12 that, in their opinion, will or have regenerated to
13 natural regeneration, areas that they have treated and
14 then somewhere in there areas that are treatable or
15 untreatable but have not been treated. Now, if you
16 take -- in other words, are various zones that might be
17 within the bounds of these two lines.

18 Now, if I were to say: There is the area
19 that we have treated, put another line in and say:
20 That is the area that we believe is treatable but we
21 haven't treated, the area that is untreatable, what is
22 that? Is that an area that will or will not regenerate
23 naturally. Why is it untreatable?

24 We then get back into what is the context
25 in which the word is used. It may be untreatable

1 because the terrain, it is either too wet, we described
2 in fact earlier in this panel two conditions where
3 there may be difficulty because of the physical nature
4 of the site or there may be difficulty because of the
5 residual forest that exists. That's a simplistic one.

6 It may be untreatable because of the fact
7 that we don't have the equipment and, in some cases,
8 perhaps the expertise, we aren't able to deal with it
9 at this time. Or it may be classed as untreatable
10 because in fact it is really non-treatable, we may not
11 want to treat it.

12 Now, is that going to revegetate into a
13 natural forest; in other words, the commercial tree
14 species. Our evidence from the array of documents that
15 we have presented here, the NSR surveys that Mr. Gordon
16 gave you, the SOARS information in knowing that where
17 we do treat the profusion of other species is great,
18 that in fact -- and our own professional observations
19 when we fly over, look through, walk through areas,
20 particularly not -- that the area one year, six months
21 or maybe even two years or three years after it had
22 been depleted by harvesting, but what happens when you
23 go back 10 years, and this is where we begin to get
24 some different perceptions and understanding of what is
25 going on in that forest.

1 But the problem is if we have documented
2 areas at some time as this is where we treat it, this
3 is where, well, we would like to treat but we couldn't
4 do it for maybe it was funding or whatever, or site, or
5 residuals and the untreatable, it creates an impression
6 that unless you are treating there is somehow nothing
7 going on.

8 And what I would like to point out
9 particularly - and Ms. Koven brought this out - is that
10 where we treat we should be doing it to specifically
11 develop or create a forest with certain attributes, and
12 that is what we are moving towards.

13 We may or may not have total success in
14 achieving that desired objective - that's where Mr.
15 Gordon was talking about the silvicultural effects of
16 this - but we do have some strong sense that as we have
17 moved over the past decade -- two decades, put it that
18 way, that we have moved in terms of our sophistication
19 of, first of all, knowing what is there, knowing how to
20 treat it and having the where-with-all to treat it in
21 terms of the technology.

22 I would point out again to the Board and
23 draw the Board's attention to a matter that Mr. Gordon
24 brought up, that it was not until the development of
25 the forest management agreements that we very clearly

1 specified in the documents, the contractual document
2 and in the planning document, that the working group,
3 the forest unit that was being harvested then had to
4 have a description of how it was going to be done, what
5 then would be the objective stand, whether it was a
6 result of an investment of silvicultural treatment or
7 natural regeneration, and what were the standards.

8 And Mr. Gordon went through those
9 regional standards and you would notice that there was
10 variation in there.

11 But this is the direction we have moved
12 and, as you know, in the Timber Management Planning
13 Manual that now applies to all areas within the area of
14 the undertaking.

15 And I think that -- if you are looking
16 for now becoming consistent in documentation,
17 consistent in putting together what should be the
18 appropriate silvicultural treatment or leaving it for
19 harvesting and then followed by natural regeneration,
20 those are the documents that we would go to now. But
21 in the past, prior to 1980, they in effect did not
22 exist.

23 This is not to say the same management
24 objectives weren't there, sometimes they were pieces of
25 paper, sometimes they were plans and sometimes they

1 were in the forester's head, and that is part of the
2 problem.

3 MRS. KOVEN: Mr. Armson, if you had --
4 looking at this chart, page 249, if you had unlimited
5 resources and you pursued the silvicultural treatment
6 you have been pursuing in the last number of years,
7 would in fact a gap between harvest versus regeneration
8 treatment only be the 20 per cent; I mean ideally?

9 MR. ARMSON: Well, if you had unlimited
10 resources, professionally I would say no, because I
11 don't believe we should be investing in many of these
12 areas. I believe there are many areas that are quite
13 justifiably harvested, that if we have the appropriate
14 knowledge, and I think we do, we harvest those and we
15 let them regenerate naturally.

16 I think that we would be proffered
17 with the landowner's funds, if we were then to try and
18 make those up, unless we had some justifiable reason
19 for it. I think it is the investment strategies that
20 become really the key to this in terms of the
21 silvicultural investment, what are you trying to
22 achieve in terms of the objective stand down the road.

23 And this is where the time factor becomes
24 really an important one. We are talking about
25 investments, that even in the short span we are talking

1 about 50 years, maybe longer.

2 MRS. KOVEN: And what does that mean
3 for -- the gap seems to becoming very consistent, this
4 gap since 1979, which does suggest actually some sort
5 of investment strategy but capped by an amount of
6 spending?

7 MR. ARMSON: Yes, that is correct, it has
8 moved, the two lines are coming closer I guess is what
9 I was saying. I don't really think that they should be
10 justifiably right together, and they couldn't be
11 because there is a certain small proportion that is out
12 in roads and out in landings. We are still accessing
13 that natural forest.

14 Yes, I can see it, but I can also see
15 that in some kinds of forest and for some conditions on
16 a unit basis; in other words, there might be a
17 relatively wide gap between the areas in which you work
18 best compared to the area, and on other areas there
19 would be a very small difference.

20 But, again, we come back to the
21 management strategies in relation to the needs and
22 objectives for that area and the situation and the
23 context and, obviously, the industry for which timber
24 is being supplied.

25 MR. MARTEL: Before managing the area

1 then, before managing, why don't we decide precisely
2 how much space we need, invest all our money in that
3 area, including access, and farm it like hell and then
4 leave the rest of the province alone?

5 I mean, if that is what you are saying to
6 us, we only need a certain amount of area and we farm
7 it like mad and look after it like mad and we can
8 reduce the time factor in growing trees, then why don't
9 we design that area and leave the rest of the province
10 alone?

11 MR. ARMSON: I would suggest, Mr. Martel,
12 there is an element of the principle, but I would
13 suggest to you that we have a very large part of the
14 province and economically -- socially and economically
15 what we want to do is attain a balance within that area
16 and it may well mean that in one point in relation to
17 one or more mills you might in fact decide on a higher
18 level of investment on specified areas and that might,
19 to some degree, relate to a geographic well defined.

20 But the land itself, the soils, the
21 location and the access, of course, are not simplistic
22 in that sense. So I would suggest that what you would
23 have is a mosaic and what do have in fact is almost a
24 mosaic building up of intensity of levels of treatment,
25 and I think that is the direction and that is probably

1 the valid way in which to move.

2 But I don't -- again, I don't think we
3 can just say there is one area and we are going to
4 concentrate all our efforts there. I really think that
5 that is doing a number of things. It is -- first of
6 all, I don't think there is one area in which we could
7 do that. Secondly, I think it tends to ignore the
8 realities of just the natural dynamics of our forest,
9 that there are many -- we have a large forest area in a
10 condition, in a climatic condition currently and
11 possibly even projected 10 years, that has a tremendous
12 advantage over many of the areas in which intensive
13 silviculture is carried out, many biological balancing
14 conditions that I think we should consider, some of
15 which are depletionary factors such as insect and fire,
16 and we have got to take those into account.

17 THE CHAIRMAN: Surely that would not be
18 acceptable from the public's point of view in any
19 event, who gets to live by the intensely harvested area
20 as opposed to those who get to live in the untouched
21 areas?

22 I mean, you do not -- I would suggest
23 that if you tried to lop off a section of the province
24 and say: You are it, it would not be acceptable from
25 many standpoints.

1 To a large extent, you find that in the
2 waste disposal area now when certain localities or
3 areas are suggested for waste disposal, primarily for
4 the benefit of other areas of the province, and
5 although it may be, from an overall perspective, nice
6 to think of many areas of virgin, untouched forest that
7 will not have to suffer any ravages of harvest or
8 anything else, I think practically it would create
9 other problems, apart from the natural forest
10 biological concerns that you have alluded to.

11 MR. ARMSON: This is my concern, Mr.
12 Chairman, that it would -- the existing mills and
13 communities might --

14 MR. MARTEL: Well, let me be abundantly
15 clear. I am not suggesting that you confine it to a
16 specific designated area. What I asked was: If you
17 were to preform in an agricultural sense - there are
18 areas around Thunder Bay that grow better than other
19 areas around Thunder Bay - so that if you intensify the
20 area in the good area, for example, you would produce
21 trees faster and over a shorter period of time still
22 using the same workforce in that area, as opposed to
23 trying to go out and scarify some rock almost in some
24 barren area where you are trying to regenerate that
25 specific type of area and yet you are doing it with

1 great difficulty and maybe just seed.

2 I am saying: Do you concentrate your
3 efforts in specific economic areas that have the type
4 of soils and so on as opposed to trying to cover the
5 waterfront and try to make those areas produce faster,
6 in a shorter time frame and so on? That is the
7 question I was asking.

8 To suggest I was trying to say, put it
9 all in southern Ontario, is not the point at all or in
10 northeastern Ontario, because the economics are there
11 and one has to be realistic. But I am saying: What
12 are the benefits of concentrating our efforts in the
13 more desirable areas that produce faster now and we
14 know that to be the case.

15 THE CHAIRMAN: Well, Mr. Freidin, this is
16 your examination, perhaps we should let you get at it
17 at some point.

18 I do not know, Mr. Armson, if you want to
19 answer Mr. Martel's last question, if you can, but...

20 MR. ARMSON: Mr. Martel, I believe that
21 we have and we have produced evidence that we are
22 moving and have moved, in fact, well towards
23 delineating those areas within the broad area of the
24 undertaking, and keeping in mind the demands and needs
25 of the mills and the communities associated with them,

1 to identify those areas that should receive higher
2 levels of investment and areas that perhaps should
3 receive little to maybe no investment in terms of
4 silvicultural activities. And I think that is what I
5 believe you are saying.

6 However, where you do it and exactly how
7 you do it becomes something that you don't decide, I
8 don't think, overnight in a monolithic sense. That is,
9 I guess, the point I am making.

10 MR. FREIDIN: Q. Mr. Armson, based on
11 your understanding of the soils and the variability and
12 productivity of different sites in different locations,
13 is it realistic, in your view, to think that there
14 would be an area that you could block off which -- all
15 of the land within which would be of a highly
16 productive type that Mr. Martel has indicated might be
17 sort of farmed intensively?

18 MR. ARMSON: A. There are areas. I
19 don't think we are looking at huge blocks. And another
20 factor, and I think this is a key one and it is that
21 the very nature of practising management on these areas
22 to produce timber means that there is access. This is
23 a province that is extremely well endowed with water,
24 with lakes, rivers and all the other resources that are
25 there and, in a sense, the management of those

1 incorporated and woven into this sense of silvicultural
2 investment makes a lot of sense to me, and I believe to
3 the Ministry in terms of integrating the resources
4 management on this area in which there may be specific
5 areas where you make a greater investment.

6 For example, in terms of moose, moose
7 management, that may in fact become a relatively higher
8 profile type of management in this area rather than in
9 that area, and this is really what we are talking
10 about, balancing those -- the management for those
11 resources to meet essentially the landowners' desires
12 in the short and long-term.

13 Q. Mr. Armson, you indicated -- you sort
14 of asked yourself the question: Does it regenerate,
15 this area that wasn't treated. And you indicated that
16 the evidence that you have indicates that it does, and
17 you referred in your answer to the SOARS information
18 which you just reviewed. You also made reference in
19 your comments to the NSR surveys.

20 Just very briefly can you just indicate
21 what it is about the NSR survey results that lead you
22 to rely on it for that particular conclusion?

23 A. Yes. Within -- the NSR surveys were
24 undertaken over quite broad and extensive areas and the
25 document shows the extent of those areas, and much of

1 that area may have been cut-over at some time, some of
2 it may not, part of it may or may not have been
3 treated. In many of the areas the amount of area that
4 has been treated, certainly in the very larger FMAs,
5 was relatively small, a very small proportion.

6 Those surveys indicate that the
7 categories of areas that had regenerated or regenerated
8 and only required tending were relatively large, the
9 proportions varied, but they are quite large in
10 relation to the total area that was surveyed. That
11 gives rise to this -- it is not complete, but it is an
12 indication from which we draw a conclusion.

13 As I mentioned, the SOARS. Another piece
14 of evidence is, as you know, and as was described by
15 Dr. Osborn, the formal re-inventory is on a 20-year
16 cycle for each of the management units and from those
17 re-inventories changes may have been made in boundaries
18 and so on and so forth, areas may have been withdrawn
19 for other uses, but from those re-inventories, from the
20 FRI, in other words, we could also draw a picture, if
21 you like, about the extent of the productive forest
22 base.

23 This doesn't mean to say that the reasons
24 for changes within it are always the same, but we can
25 look at that. And then, as I mentioned, the other

1 evidence, if you like, is related to professional
2 observations throughout the province by foresters over
3 time.

4 Q. Dr. Osborn, in relation to the last
5 comment by Mr. Armson, that by looking at the
6 productive forest base over time may provide some
7 information or insight. Are you able to come on that
8 any further?

9 DR. OSBORN: A. Yes, you can do this I
10 suppose at a variety of levels, but you can do this,
11 for example, with the documentation that has been
12 received already. Within Panel 3, Exhibit 56, was the
13 FRI of Ontario, 1986; and also in Panel 3 included in
14 the evidence-in-chief statement was the publication of
15 the inventory as published in 1963.

16 Now, using those two sets of data, which
17 albeit didn't cover exactly the same areas, one can
18 look at the numbers of those two provincial sets of
19 data and see over that 1963-1986 period whether in fact
20 the forest has changed, changed very much in some gross
21 features. So at that global level one can look and
22 observe.

23 Q. And have you looked at those two
24 documents and made any sort of comparisons which you
25 think might be of any assistance in relation to this

1 topic we are talking about, regeneration of the forest
2 and the amount that is available?

3 A. Yes. In essence, I have taken the
4 data from the two documents and very simplistically
5 tabulated and showed for the two time frames, horizons
6 what the differences in fact numerically look like.

7 Q. Can you please indicate what the
8 results of that look-see were? (handed)

9 I would like to provide the Board with a
10 document that I understand you will refer to in your
11 answer, Dr. Osborn.

12 A. Correct.

13 THE CHAIRMAN: Exhibit 142.

14

15 ---EXHIBIT NO. 142: Four-page document prepared by
16 Dr. Osborn re: Numerical
17 comparison between FRI 1986
 (Exhibit 56) and Inventory for
 1963 (Exhibit No. 70).

18 MR. FREIDIN: Yes, what exhibit number
19 would this be?

20 THE CHAIRMAN: 142.

21 MR. FREIDIN: Q. Perhaps you could
22 proceed, Dr. Osborn?

23 DR. OSBORN: A. Exhibit 142 has four
24 pages and the first two pages describe the situation in
25 1963 and the situation in 1986 and they are a straight

1 copy of numbers from the two documents I previously
2 referred to.

3 I translated the numbers all into
4 hectares to make the comparison somewhat easier. We
5 have had to do some adjustments essentially of the 1963
6 data, that the area covered in 1963 was not exactly the
7 same as that covered up to 1986 and, therefore, there
8 are some modifications which the footnotes describe.

9 Again, another example of some
10 difficulties in doing this sort of comparison is
11 definitions change over time, but we have tried to keep
12 the numbers as comparable as we can in terms of the
13 terms, the definitions and what they mean in the land.

14 So 1963 describes -- sorry, the first
15 page describes what was there in 1963 and I want to
16 concentrate upon the column that has to do with Crown
17 land, and it is that column of numbers that I am going
18 to speak to. And really we are looking at productive,
19 non-productive, non-forest and total, FRI terms
20 previously described, and we are looking as to how did
21 those values in 1963 -- how do they now look as
22 published in 1986.

23 The second page, therefore, essentially
24 is a copy of the data straight out of Exhibit 56. And,
25 again, we have the Crown column, Crown land ownerships

1 that we have described again in the Forest Resources
2 Inventory, again showing the headings we talked of,
3 productive, non-productive, non-forest and total.

4 If you turn to the third sheet, please,
5 we now have taken just the Crown land columns for '63
6 and '86 and put them side by side to make the
7 comparison between those categories of land according
8 to the FRI, Crown land, productive, non-productive,
9 non-forest, and page 3 indicates the numbers that are
10 represented in those documents.

11 And so the productive total area,
12 productive total area shows 29-million in 1963
13 approximately and some 33-million in 1986 and likewise.

14 However, one should recognize that the
15 total area looked at in the two times was somewhat
16 different, unfortunately, and so the fourth page went
17 one step further. It was essentially a copy of page 3
18 but it has added percentages to try and quasi or make
19 the areas comparable, more comparable. Dangerously so,
20 these proportions, as we will see in a moment.

21 And so, yes, the productive in '63 was
22 29-million, the productive in 1986 is 33-million, but
23 on a percentage basis the productive in 1963 was 88 per
24 cent and the productive in 1986 is 86 per cent on a
25 percentage basis. Why the change?

1 One of the reasons that could have
2 changed is that the area looked at in 1986, the
3 boundary of that area was further north than that
4 included in 1963's data that I have used. In that far
5 northern limit of the province the forest is somewhat
6 different from that which is found further south. So
7 one has to look at these numbers and have some
8 interpretation of them.

9 Simple numbers, global numbers indicating
10 that over that period of time, from '63 to '86, the
11 forest hasn't dramatically changed in its proportions.
12 An example, very simple numeric example of that which
13 Mr. Armson was speaking to.

14 MR. FREIDIN: Mr. Chairman, the 1963
15 inventory is Exhibit No. 70.

16 Q. And, Dr. Osborn, on the first page of
17 page 142, footnote No. 1 refers to adapted from Dixon
18 1963. Am I correct that that is a reference to the
19 document which in fact was marked as Exhibit No. 70?

20 DR. OSBORN: A. Correct. Mr. Dixon was
21 the author of that publication.

22 Q. Thank you.

23 Mr. Armson, in the last paragraph -- on
24 page 39 of the witness statement, the paragraph
25 immediately above the citation of Document No. 28, you

1 indicate that:

2 "It must be recognized that areas that do
3 not receive a regeneration treatment will
4 usually take a longer period of time to
5 regenerate than that taken for treated
6 areas. There is also more control in
7 achieving the desired species composition
8 when an area receives a regeneration
9 treatment. "

10 And is that last statement, that there is
11 also more control in achieving the desired species, in
12 any way in your view inconsistent with the results that
13 you reviewed from the SOARS Report?

14 MR. ARMSON: A. No. I believe that the
15 SOARS Report reflects that in varying proportions and
16 certainly perhaps not in those that we would today
17 desire, that we have in fact achieved some measure of
18 that by ensuring that the species, and more
19 particularly where the planting has involved the
20 dimensions of those trees where you have, in fact,
21 planted jack pine to produce jack pine, it has produced
22 a jack pine forest unit - and that is a relatively
23 significant proportion of the area, certainly for jack
24 pine - and, as I pointed out, the dimensions of those
25 trees, spacing will inevitably result in shortening the

1 time frame over which the viable harvest can be taken
2 from those areas. That is one of the aspects.

3 A second aspect is that of quality and I
4 think it has been noted, the subsequent tending
5 treatments may in fact be directed towards improving
6 the quality; that is; not only the rate of growth but
7 the form of the trees in there. And form, of course,
8 is also related to the genetic makeup and here the
9 program that Mr. Cary referred to as being an important
10 part and a much greater development has occurred since
11 1972 is that related to tree improvement and the
12 production of material of specific genetic properties.

13 But these are all woven into the
14 investment, if you like, of silviculture and the
15 concern to direct control on the kind of stand on those
16 areas in which the investment is made.

17 Q. Now, Mr. Cary, if I could just refer
18 you to the graph that is on page 249 which was referred
19 to by Mr. Armson, and he indicated that the graph shows
20 that the proportion of the regeneration treatment
21 percentage of the harvest area has increased from 1974
22 to 1986?

23 MR. CARY: A. That is correct.

24 Q. Does the graph show how much of the
25 harvested area that has been left to regenerate through

1 natural means only?

2 A. Not in a definitive sense, no.

3 Q. What do you mean by that?

4 A. May I show the overhead and explain?

5 Q. Yes.

6 A. What I meant was, Mr. Freidin, that
7 there is no specific line or no specific indication on
8 the graph.

9 However, if we, as Mr. Armson has
10 explained and evidence has been presented, this area
11 here below the green line is the area that has been
12 treated with the regeneration treatment, as Mr. Armson
13 has described.

14 The area above the green line and between
15 the red line, less the area that has been taken up by
16 roads and landings or for exclusive uses like another
17 park, that area is regenerating naturally, unassisted
18 by man.

19 Q. Now, just for the record, the green
20 line is the line which is the regeneration line, as
21 indicated on page 249, and the red line you referred to
22 is the line which depicts the harvest cut; is that
23 correct?

24 A. That's correct.

25 Q. Now, in your evidence on Monday, you

1 indicated that the Forest Production Policy Options, as
2 were presented to Cabinet, assumed that 130,000 acres
3 of cut-over in any one year would regenerate naturally
4 and provide an assumed amount of wood, and I think that
5 evidence indicated that assumed amount was 10 cunits
6 per acre?

7 A. That's correct.

8 Q. And could you convert 130,000 acres
9 into hectares for me?

10 A. Yes. It is approximately 50,000
11 hectares, slightly over, but for our purposes of
12 discussion I will call it 50,000 hectares.

13 Q. Now, if the 50,000 hectare
14 regenerating naturally each year was correct and you
15 wanted to add that to this graph to show the total of
16 the area treated and an additional 50,000 hectares
17 regenerating naturally, how would you do it on that
18 graph?

19 A. I would like to draw another line on
20 that graph and this is how I draw it. 50,000 hectares,
21 or 130,000 acres, regenerating under the assumption
22 that they made in 1972. So if this level is 50, I
23 start here and draw a line, that would remain 50,000
24 hectares above the green line.

25 So I have drawn a blue line, 50,000

1 hectares above the green line, and I will label it FPP
2 assumption and 50,000 hectares.

3 Q. Any reason you didn't put a blip in
4 the blue line where the red line dips around 1977?

5 A. No, there isn't. This --

6 Q. There is no reason?

7 A. Well, no, there isn't a reason. The
8 line follows this space, not that. (indicating) So
9 provided that the harvest is in excess here, we will
10 still keep that 50,000 hectare area regenerated.
11 (indicating)

12 Q. Okay. Now --

13 MR. MARTEL: Could I ask a question? Are
14 we then falling behind then?

15 MR. FREIDIN: Well, I think if you allow
16 me to finish...

17 MR. MARTEL: Was that the question?

18 MR. FREIDIN: Q. Could you advise, what
19 is area between line A -- pardon me, the blue line and
20 the red line which is depicting the harvest cut?

21 MR. CARY: A. That is the balance of the
22 cut-over or we can call it an excess. The balance of
23 the cut-over less that 5 per cent approximately, which
24 will vary, that is regenerating naturally.

25 Q. And the 5 per cent reduction is due

1 to what?

2 A. Permanent roads and landings.

3 Q. Now, you and Mr. Martel had a
4 discussion on Monday and you agreed with him that if in
5 any year or years the level of regeneration treatments,
6 which is the green line, contemplated by the
7 Implementation Schedule did not occur, but the area
8 left to regenerate naturally exceeded the 50,000
9 hectares or the 130,000 acres, that there was a
10 cushion; is that correct?

11 A. I think I indicated that to you, sir.

12 Q. And could you just describe what you
13 meant by a cushion in that discussion?

14 A. In that discussion, what I meant was
15 this excess area here. (indicating) That would be the
16 cushion that I was referring.

17 Q. What area are you referring to when
18 you say 'the area here'?

19 A. Sorry. Between the blue line and the
20 harvest cut line, the red line.

21 Q. Knowing that there is a cushion, as
22 you have described, does that mean that you can reduce
23 the area to receive regeneration treatments?

24 A. One could, yes.

25 Q. All right. Would you suggest

1 reducing the area that was to receive a regeneration
2 treatment because of that cushion?

3 A. No, I wouldn't.

4 Q. Can you advise me why not?

5 A. Well, we go again to what Mr. Armson
6 said earlier and what's at the heart of our
7 silvicultural program. We want to control four things
8 and we have discussed them this morning, we discussed
9 them yesterday.

10 The location is very important, we want
11 to control the location of our artificial regeneration
12 treatments. We want to control the species. We heard
13 just a moment ago about quality, we would like to
14 control the quality of the regeneration. And we would
15 like to control the timing, rotation is a key here.

16 So those four -- we would like by
17 pursuing artificial regeneration to control those four
18 aspects, and I believe that's the objective of our
19 silvicultural program.

20 Q. Thank you.

21 MR. FREIDIN: Perhaps that -- I don't
22 have a hard copy of that, but we could undertake to
23 provide a hard copy of that with colours. Perhaps we
24 could reserve an exhibit number for it, Mr. Chairman.

25 THE CHAIRMAN: All right. Let's mark

1 that in as Exhibit No. 143.

2 ---EXHIBIT NO. 143: Overhead of Diagram No. 28 (Page
3 249 of Witness Statement for Panel
No. 4) with blue line drawn on.

4 MR. FREIDIN: Now, the next section of
5 the witness statement that we are going to deal with,
6 Mr. Chairman, is the section entitled Ontario's Wood
7 Supply, and the evidence will be given by Dr. Osborn
8 and Mr. Gordon.

9 Q. And, Dr. Osborn, I understand that
10 you are going to speak to paragraphs 59 to 63 of the
11 witness statement, and that Mr. Gordon is going to
12 speak to the balance of the witness statement that
13 deals with the wood supply?

14 DR. OSBORN: A. Correct.

15 Q. And that you will be referring to
16 primarily Documents 29 to 33, but that you will not be
17 referring to Exhibit 31 at this particular stage of the
18 evidence?

19 A. We would like to leave discussion of
20 that document until the end of the section on wood
21 supply.

22 Q. Dr. Osborn, could you, just by way of
23 introduction, indicate to the Board generally what the
24 evidence they will hear is dealing with and why you are
25 going to be dealing with the topics that you have

1 selected in this portion of the evidence?

2 A. It is a continuance of this morning's
3 discourse. It is also a continuance of much of that
4 which was said in Panel 3.

5 We have this set of management objectives
6 which we have explained, we have this purpose of the
7 undertaking in the continuous predictable supply, and
8 in order to look at that continuous predictable supply
9 we need to make some estimations of what the future
10 forest might look like under a varying set of
11 conditions.

12 And so it behooves us to do much as was
13 explained in Panel 3, and that's to look at different
14 parts of the forest, different locations in the forest
15 and assess what might be the factors that we can or
16 cannot control and the level of them, and what might be
17 the investments that we should or should not make to
18 ensure that we comply with those objectives.

19 So it is an effort to look at what the
20 futures may entail and to try and determine what we
21 should do today, as well as tomorrow, to try and
22 ensure, as best we can, that we end up with the future
23 with all those paramaters that Mr. Cary and Mr. Armson
24 just alluded to, taking care of as best we can.

25 So that is the essence of what we are

1 going to describe and we have broken it primarily into
2 two parts. We have used a tool, a method, which I will
3 try and explain the overall practices of how this
4 works: What is this tool, what goes into it, what
5 comes out of it, and the mechanics of it.

6 And then, in essence, Mr. Gordon will
7 take the numbers in Ontario and portray the sorts of
8 values that one may expect in Ontario given that
9 approach and methodology. So there is an intro into
10 how we are going to do this and then there is a: Let's
11 see what happens when we do it, type of portrayal.

12 Just to back off to the beginning for a
13 moment, you might really wonder why this sort of look
14 at the future is necessary at all, because there is a
15 document, which is Document 29 on page 250, and that
16 document shows essentially the growing stock that was
17 available in the forest approximately at this point in
18 time, and the left-hand of the two boxes, the big box
19 on the histogram indicates approximately what's out
20 there at this point in time.

21 And the right-hand box estimates
22 approximately what is being harvested at this point in
23 time, and by merely taking that growing stock, that big
24 box of 2.9-billion cubic metres, which actually is the
25 volume of the sum 54-billion or more trees in Ontario,

1 if we take that total growing stock and we divide it by
2 what's being annually cut, the 20-million, the supply
3 lasts for 145 years.

4 And in a way this diagram sort of
5 illustrates part of a dealing with the myth that Mr.
6 Armson -- some of the myths Mr. Armson was alluding to,
7 is: Are we running out of wood. If you look at that
8 diagram the answer would appear to be, on a global
9 sense no, most obviously not.

10 So why the sophisticated analysis? Well,
11 because the picture on page 250 is a static picture,
12 and we make reference in Panel 3 to the need to look at
13 how that might change, those conditions might change
14 over time. And so this modeling exercise, this
15 modeling portrayal analysis that we will present tries
16 to predict the timing and magnitude of those changes.

17 Q. And I understand you also have a
18 document which indicates a non-static situation?

19 A. Yes. On page 251 is an example again
20 of the same sort of format that was presented in Panel
21 3 regarding what is happening to something over time,
22 an example of one of the outputs that will come out of
23 this particular model that you will see more about and
24 calibrationss more about later this afternoon.

25 But just to touch with that diagram very

1 simplistically, very briefly, it shows growing stock,
2 total volume of that which is out there at this point
3 in time. It shows the growing stock and there is a
4 very faint dotted line called old forest - and we will
5 come to what those terms mean in just a moment - and it
6 it shows that the old forest growing stock over time
7 will eventually disappear. It will all, in terms of
8 the timber production base, it will all go.

9 The picture also shows over time that
10 that growing stock will eventually be replaced by the
11 new forest, the forest that Mr. Cary and Mr. Armson
12 have spoken to and Mr. Gordon has already described
13 some numbers about, and that new forest growing stock
14 will gradually increase and reach a certain value.

15 And although this diagram is
16 hypothetical, the difference in the level between the
17 existing old growing stock and the future new forest
18 growing stock is quite real.

19 It comes back in a way to the point Mr.
20 Martel was alluding to. We may, by choosing where to
21 invest and the level at which to invest, end up with a
22 much more efficient forest with far less capital
23 invested but producing and growing and putting wood
24 into the mill door in a much more efficient fashion.

25 Now, one could look at this diagram and

1 say the forest is disappearing. The old growing stock
2 which is currently high is going to reduce, the new
3 growing stock coming back is never going to reach that
4 level. Horror. But, in fact, if you understood that
5 that new forest growing stock at a lower level may be a
6 much more efficient use of the resource, a much more
7 wise use of the Crown's capital - and we will go on to
8 describe what this means - that picture which might
9 look simplistically very horrific, in fact, is very a
10 pragmatic and very practical and very useful piece of
11 forest management.

12 So this is a dynamic picture and it is
13 this sort of picture that we will describe and Mr.
14 Gordon will present some numbers about.

15 Q. And just one comment -- one question
16 arising from that. When you said that the old forest
17 will all go, are you suggesting that it was going to
18 all go by any particular means?

19 A. As we talk about this later, it will
20 go by a variety of means. We will talk about how it is
21 depleted, new and old. There will be different kinds
22 of depletions.

23 But I again want to make a statement that
24 this is a biological entity and, over time, certainly
25 the timber production part of it, the trees, the old

1 existing trees will all get older, and if they aren't
2 cut or burnt or eaten, they will eventually die of old
3 age. You can't preserve the forest, you can conserve
4 it.

5 Q. Dr. Osborn, I understand that you
6 have a video which you believe would be helpful to show
7 to the Board and that you actually believe that it
8 would be useful to show it twice with certain
9 descriptions and discussions inbetween.

10 Perhaps you could -- I know that the
11 video is about 14 minutes; is that correct?

12 A. Correct.

13 Q. It is about ten to one now. I am
14 just wondering perhaps if you could indicate to the
15 Board why you would like to show this twice and if they
16 are willing to permit you to do that, you may show it
17 for the first time before lunch.

18 MR. MARTEL: Where is the popcorn?

19 MR. FREIDIN: It is on its way.

20 DR. OSBORN: The rationale for showing it
21 twice: The video was not created for the Environmental
22 Assessment, the video was created for a general
23 audience as a general perception of some aspects of
24 forest management, but there are key elements within
25 that video that speak directly to this piece of the

1 evidence.

2 And the intent with showing it twice, the
3 thought behind showing it twice was to show in its
4 entirety, first of all, general appreciation of what it
5 portrays, highlight some of the pieces that relate
6 directly to this evidence to re-show that those pieces
7 then become much more apparent and recognize as to
8 where do they fit in light of what's going to be said
9 later this afternoon.

10 So that was the idea between the showing
11 it twice. The other way around was to identify the
12 pieces right up front and then show it.

13 THE CHAIRMAN: Any objections from anyone
14 to this proposal?

15 Mr. Castrilli?

16 MR. CASTRILLI: Mr. Chairman, I am not
17 necessarily going to object, but I would like to know
18 certain facts about the video as to who prepared it and
19 when, who is speaking on it, among other things.

20 MR. CAMPBELL: Are there opinions
21 expressed about the merits of what is being done or not
22 done. Who is going to speak to that?

23 I think these are important questions.

24 THE CHAIRMAN: I agree. Let's have some
25 answers to some of these questions.

1 Firstly, who prepared it?

2 DR. OSBORN: The Ministry of Natural
3 Resources.

4 THE CHAIRMAN: And for what purpose?

5 DR. OSBORN: That's a question for which
6 I will certainly need to walk away and find out the
7 answer, Mr. Chairman, because I do not personally know
8 exactly the purpose for which it was designed.

9 MR. FREIDIN: Mr. Armson looks like he
10 wants to say something.

11 MR. ARMSON: Mr. Chairman, this video,
12 actually initially prepared as a movie, was prepared
13 for the Ministry. It was prepared largely at, I guess,
14 my instigation when I was Executive Coordinator, and
15 the purpose was to portray in a way that would be
16 readily understood by people at all levels in an
17 entertaining way the nature of the forest, how it had
18 come to be where it is, including some of our history,
19 and some of the key elements relating to time and
20 growing stock and as they related - these were
21 obviously technical matters - but how they could be
22 related to the on-going management of the forest.
23 That was the purpose.

24 THE CHAIRMAN: I take it you are not the
25 narrator on this?

1 MR. ARMSON: No, I am not. This was a
2 professional production contracted out by the
3 communications service --

4 THE CHAIRMAN: Who wrote the script?

5 MR. ARMSON: The element of the script
6 was written by, I guess, three members of the staff,
7 two of whom are here, and then the Communications
8 Service Branch staff and the producers of the film
9 basically produced the final story line which was then
10 vented, the video was then shown to senior management
11 and...

12 THE CHAIRMAN: And are opinions expressed
13 about the subject matter by the narrator?

14 MR. ARMSON: There are statements in
15 there that relate to what is being portrayed and what
16 therefore that means in terms of the visuals, yes. It
17 is a very general -- it is general in its sense.

18 MR. FREIDIN: And so can I just comment,
19 Mr. Chairman. You know, I recall from seeing it that
20 there are comments there saying that, you know, the
21 Ontario's forests is a great a resource that should be
22 dealt with and, you know, looked after and all those
23 sorts of things.

24 I don't think there was anything
25 particularly controversial about it. But I am a bit

1 surprised that the issue has arisen the way it has
2 because this videotape has been available for viewing
3 for months and the parties were advised that it was
4 available for viewing for months.

5 THE CHAIRMAN: Mr. Castrilli, in view of
6 the fact that two of the members of -- is it two
7 members of this panel?

8 MR. ARMSON: No, myself and Mr. Lamburg.

9 THE CHAIRMAN: I see. Well, at least one
10 member of the panel is here and can be questioned about
11 anything relating to the script. I do not think the
12 Board seems particularly concerned about viewing this.

13 What are your particular concerns if this
14 were shown?

15 MR. CASTRILLI: Well, I am mainly
16 concerned about the ability of any of the individuals
17 on the panel to actually answer the questions. I don't
18 want to be confronted with a series of: I don't know.

19 THE CHAIRMAN: Well, this is what we
20 attempted to ascertain.

21 Mr. Armson had a hand in the actual
22 script, as I understand it. There is another member of
23 the Ministry staff who also had a hand in the script,
24 so certainly they will be in a position to be able to
25 answer any questions that might arise out of this

1 video.

2 MR. CASTRILLI: I may also wish to want
3 to see the video -- I understood that was to be made
4 available in one of the rooms here, but that certainly
5 hasn't been the case for the last few months, as far as
6 I am aware.

7 It was a statement I think in the
8 context -- in the text of the Panel 4 evidence
9 indicating the video would be available during the week
10 it is presented. I don't know about this comment about
11 being available for the last several months. Apart
12 from the fact that this document has been around for
13 the last several months, I haven't been reading it --

14 MR. FREIDIN: I would have made it
15 available to you, Mr. Castrilli, if you had asked.

16 THE CHAIRMAN: Well, Mr. Campbell, do you
17 have any specific concerns based on the answers to some
18 of the questions that the Board asked Mr. Armson?

19 MR. CAMPBELL: Well, no, Mr. Chairman,
20 except that it is clear to me from Mr. Freidin's
21 remarks that this is obviously something that is
22 intended to persuade or inform the people of the
23 province in a positive light, shall I say, about the
24 development of Ontario's forests.

25 THE CHAIRMAN: Is there something

1 intrinsically bad in that?

2 MR. CAMPBELL: I didn't say that, Mr.
3 Chairman, and I didn't say I was taking a particular
4 objection to that.

5 I think if Mr. Armson says that he adopts
6 all of the sentiments that are expressed in there and
7 is content to be cross-examined on them, then that's
8 fine.

9 THE CHAIRMAN: Mr. Tuer, do you have any
10 comments on this?

11 MR. TUER: No, Mr. Chairman. In my view
12 these questions that have been raised go perhaps to the
13 weight that's to be attached to the video, but not to
14 its visibility.

15 This sort of evidence is commonly
16 admitted before tribunals and courts and I think, as I
17 have said, it is a matter of what weight the Board
18 wishes to put upon what it sees and hears.

19 MR. CAMPBELL: Mr. Chairman, the only
20 other thing I would raise further is what the document
21 actually says is, is that: The tape is available for
22 viewing in the public reading room, Thunder Bay, after
23 commencement of the hearing.

24 I don't recall from being in that room
25 that if somebody had wandered in from -- who is trying

1 to follow this hearing and had sort of asked -- and
2 sort of was there and said I would like to see the tape
3 now. But I would be surprised if it could be viewed.

4 THE CHAIRMAN: Okay. I think there is an
5 easy way to resolve this.

6 The Board will break for lunch for an
7 hour and a half. Counsel or any others that wish to
8 view the video can do so over the lunch hour.

9 We will come back, hear any specific
10 concerns about admitting the video and the Board
11 viewing it, and then proceed right after lunch, if
12 there are not any sustainable concerns, with the Board
13 viewing it at that time.

14 So having said that, we shall adjourn for
15 lunch until 2:30.

16 Thank you.

17 ---Luncheon recess taken at 1:08 p.m.

18 ---Upon resuming at 2:35 p.m.

19 THE CHAIRMAN: Good afternoon. Very
20 ingenious. What if we do not let it in?

21 MS. BLASTORAH: We want the popcorn back.

22 THE CHAIRMAN: Well, now that some of you
23 have had an opportunity to view it and we had an
24 opportunity to question a couple of you in the hall who
25 would not tell us what the ending was, we would like to

1 know if there is going to be any objections to it being
2 admitted?

3 MR. CASTRILLI: No objections, Mr.
4 Chairman.

5 THE CHAIRMAN: Mr. Tuer?

6 MR. TUER: No, I have no objection.

7 THE CHAIRMAN: Mr. Campbell?

8 MR. CAMPBELL: No, we have no objections
9 Mr. Chairman. We understand it will be transcribed,
10 the voice will be put in the transcript, so that is
11 fine.

12 THE CHAIRMAN: Okay. I also understand
13 that since it is only 14 minutes in length, the Board
14 probably can retain enough of it to maybe only have to
15 see it once, and then at the end of that we will, I am
16 sure, be able to relate whatever commentary is on it to
17 what we saw.

18 The second thing is, as far as how it is
19 going to be admitted, I take it is in the form of a
20 Beta or VHS?

21 MR. FREIDIN: VHS.

22 THE CHAIRMAN: VHS. Were you purporting
23 to have it admitted as an exhibit, the actual VHS
24 recording?

25 MR. FREIDIN: I think that is the easiest

1 thing to do.

2 THE CHAIRMAN: Okay. And I guess at some
3 stage in the proceedings if anyone else wants to view
4 it they can make arrangements, I suppose, to see it
5 privately, if anyone outside the participants to the
6 hearing today they can do that, and it will be given an
7 exhibit number. And then any commentary on it will, of
8 course, appear in the transcript.

9 Very well. We are up to No. 144, and
10 that will be entitled what, VHS Video of...

11 DR. OSBORN: The title is Shaping
12 Tomorrow's Forests, Mr. Chairman.

13 THE CHAIRMAN: Thank you.

14 ---EXHIBIT NO. 144: VHS Video entitled: Shaping
15 Tomorrow's Forests.

16 MR. FREIDIN: Q. Dr. Osborn, I
17 understand that you would like to make some remarks
18 before the movie is shown; am I correct?

19 DR. OSBORN: A. Yes. In light of the
20 Chairman's comments, there is a couple of observations
21 that I would like to make before showing the movie in
22 that case.

23 THE CHAIRMAN: Very well.

24 DR. OSBORN: What is portrayed is a
25 realization of a potential dilemma, the need to think

1 and act about that situation, the realization that one
2 can conceptualize, model that situation and look at
3 alternative solutions to that situation and amongst the
4 alternatives is the need to look at and manage the old
5 forest as well as the new forest.

6 Then, if you permit, I will show the
7 video.

8 THE CHAIRMAN: Okay, everyone, dig in.

9 VIDEO PRESENTATION

10 In the beginning there was a big storm
11 and six days later there was the world. Now, one of
12 the first creations on earth were the trees. I like
13 trees, they add just the right amount of colour to the
14 place, but not only are they nice to look at, trees
15 have a lot to offer. In fact, it seemed a shame that
16 only woodpeckers were around to enjoy them. So a few
17 days later man showed up on the scene.

18 Of course, it took him a little while to
19 figure out what trees were all about.

20 (THE CHAIRMAN: What is the rating on
21 this movie, Mr. Freidin?)

22 Of course he wasn't much better than the
23 woodpecker.

24 (MR. CAMPBELL: MNR.)

25 Okay, so he needed a little help. Like I

1 said, sometimes it takes him a little while to figure
2 things out. However, it wasn't too long before man
3 realized just how useful trees could be to him, but
4 again, despite his intelligence, he made a few
5 mistakes. Look at places like Egypt and Spain, would
6 you believe there used to be trees here.

7 Now, as time went by man became a little
8 wiser, made fewer mistakes. Take a look at Ontario.
9 All those beautiful trees, but there could be a problem
10 here too, one that was started hundreds of years ago.
11 You see, by the time European man arrived here in
12 Ontario he was getting a little more proficient with
13 his harvest. Why even the beavers were impressed.

14 He started clearing and building and in
15 no time at all he was quite prosperous. Yes, sir,
16 Ontario was a good place to grow. The trees provided
17 the capital and the industrial network to develop
18 Ontario into one of the most prosperous areas on earth.
19 And the cost to man, nothing, the trees were free.
20 Well, other than a little acknowledgment.

21 While the trees helped man begin his
22 empire he, on the other hand, kind of forgot about
23 their needs. You see, if left alone trees are
24 perfectly capable of managing themselves, but they are
25 not very quick about it, well at least not according to

1 man's schedule. But you have to remember, sometimes it
2 just takes man a little while to figure some things
3 out, and now and then it takes a little devine
4 intervention. So finally man discovered forest
5 management.

6 Now, I have always thought that forest
7 management was one of man's more important discoveries,
8 right up there with the wheel. I mean, look at what he
9 can do with it: Anywhere from two to five times more
10 timber from the same piece of land. Of course, that
11 doesn't come easy, at least not for man. To start
12 with, there is the genetically-improved stock he
13 developed, trees that actually grow faster than the
14 ones first put on earth. Okay, so nobody is perfect.
15 He also prepared the land and then spaces the trees out
16 nice and neat, even trees need their room to grow.

17 But he doesn't stop there. Man goes to
18 great lengths to weed, cultivate, nurture and protect
19 the growing forest, not cheap that forest management
20 stuff, you know. Man certainly had come a long way
21 from when he first dropped in.

22 There he was in the 20th Century with one
23 hand utilizing the old forest while with the other hand
24 he was starting and managing new forests for the
25 future. Yes, sir, man and trees seemed to be getting

1 along quite well with each other.

2 Ah! But they are not going to live
3 happily ever after, well not quite yet anyway. You
4 see, the introduction of forest management in Ontario
5 was a couple of hundred years after man first arrived
6 here. Before his arrival the forests had their own
7 little system going; trees grew old and died or were
8 knocked out by nature's own harvesters: Fire, insects
9 and disease, but new trees grew and regenerated the
10 forest.

11 It was a nice slow cycle and it worked
12 until it was interrupted by 400 years' of man's
13 activities in the forests. You see, the natural system
14 doesn't always deliver the amount and type of timber
15 that man wants, and nature doesn't always work
16 according to man's hectic schedule.

17 Now, it all becomes a question of time.
18 You see, even though man has gone to great lengths
19 today to cultivate new forests, they are just not going
20 to be ready soon enough to meet his demands when the
21 old forests run out. Here, it will be easier if I show
22 you.

23 See, right now the age distribution of
24 Ontario's forests look something like this. You will
25 notice the area of new, young forest is much smaller

1 than the area of old, mature forest. Now, the
2 distribution of different age forests that man really
3 wants is something like this.

4 If there were equal amounts of each
5 age-class, the forest could provide an even and
6 perpetual flow of timber, but there is an overabundance
7 of timber in the 80-140 year classes, the
8 senior citizens of the forest which are mature and
9 ready to harvest. At the same time there is a shortage
10 of younger forest.

11 Now, let's make another graph. This is
12 what the ideal age-class distribution of the forest
13 would look like. Unfortunately this will never happen
14 in the real world. The reason: Well, let's just say
15 that all of us have contributed to the situation.

16 Now, the uneven age-class distribution is
17 going to cause man a few problems in the not too
18 distant future. If we look at another graph, we will
19 see exactly where the problem arises. This line
20 represents the rate of growth of the new forest that
21 man has been working on so hard.

22 Now, this line shows how long the old
23 forest is going to last. You will notice the two lines
24 meet which is good, until we add a third line, the
25 demand line. The three lines now form a triangle.

1 This triangle represents a sort of hole in the forest,
2 a period of time when the old forest is depleted and
3 the new forest is not yet mature enough to harvest.
4 When translated into harsh reality, it means that large
5 chunks of man's forest industry will grind to a halt
6 and put a lot of folks out of work and destroy some
7 pretty nice communities.

8 Now, I don't want anybody to get upset,
9 it's not your fault, this triangular hole was started a
10 great many years ago. Trouble is, it could get even
11 bigger from losses due to insects, disease and fire.
12 You know, it is really interesting, it is times like
13 this that the prayer channel gets overloaded, lots of
14 requests for miracles. But, you know, most of the time
15 the answers can be found right there on earth.

16 Man wants to get rid of the triangle.
17 Simple: Just move the three lines around a bit. Let's
18 see! The demand line could be lowered, but remember,
19 realistically that would mean closing mills and putting
20 people out of work. In fact, if anything, it might
21 even go higher.

22 All right. What about this line
23 representing new forest growth? Well, man can't really
24 start new forests any sooner, but we might be able to
25 change the angle of the line through faster growth and

1 cultivating more productive trees and forests. In
2 fact, by using those methods mentioned earlier:
3 Genetically-improved stock, proper spacing, weeding,
4 herbicides and so on, he could change the angle of that
5 line somewhere between 15 and 25 per cent. But, as you
6 will notice, the triangle is still there, though it is
7 a little smaller.

8 However, there is still one line
9 remaining, and I have a hunch that man hasn't really
10 given it enough attention. It is the line representing
11 the declining of the old forest. If it could be sort
12 of stretched to last long enough until the new forest
13 is ready for harvesting, then the triangle would
14 disappear.

15 Now, lines on a graph are easy to move
16 around, but can man really make it happen without any
17 intervention from the power above.

18 Well, I'll let you in on a little secret.
19 If man works real hard he might just be able to make
20 that old forest last long enough but, of course, it is
21 not going to be easy. The way I see it, he has three
22 things to do to make it happen:

23 First of all, he has got to cut the
24 oldest trees first before they die out and become
25 useless. Now, that means he has to find them, plan and

1 schedule and harvest and then build access roads to
2 them. All this is going to require more time, effort
3 and money than just cutting the closest and choicest
4 trees. However, it is still going to be a lot cheaper
5 than the alternative.

6 Now, the second way in which man can make
7 the old forest last longer is by better utilization.
8 He not only has to start using more parts from those
9 trees that he cuts, but he should also be cutting a lot
10 of trees in stands that he hasn't been using before.

11 Finally, he must make greater efforts to
12 protect the forest both from himself and nature. Fire,
13 insects and disease can seriously cut into the amount
14 of forests eligible for cutting.

15 Ever since the beginning man has depended
16 heavily upon the forest, which is perfectly all right
17 because man and his trees are both part of nature's
18 system, but it has been left up to man to make sure it
19 remains a mutually beneficial relationship. After all,
20 the trees don't have much to say in the matter.

21 In shaping tomorrow's forests, man has
22 been on the right track with his management of the new
23 forest, but it will be a long time yet before they are
24 ready. Until then, he must rely heavily on the
25 existing old forests. However, if he treats them well

1 they will see him through for as long as he needs them.

2 You see, there is a lot more to forests
3 than just the trees.

4 THE CHAIRMAN: I wonder what George Burns
5 thinks of Nick Nichols' voice.

6 MR. FREIDIN: Q. Did you wish to speak
7 to anything in that particular video, Dr. Osborn,
8 before we move on?

9 DR. OSBORN: A. Only that it acts as a
10 link between that which was spoken to this morning and
11 that which will be spoken to this afternoon. It
12 essentially sets the stage.

13 Q. Now, Dr. Osborn, I understand that in
14 analyzing the relationships between the old forest and
15 the new forest, that a computerized simulation model
16 has been developed by the Ministry of Natural
17 Resources?

18 A. That's correct.

19 Q. In fact, the model that you are going
20 to describe is one which was developed, I believe it
21 was in 1982?

22 A. Yes, over 1980-81 and then
23 essentially used in 1982.

24 Q. And were you involved in that
25 development?

1 A. Yes, I was.

2 Q. And could you provide the Board then
3 with an outline of this particular model? It is a
4 computerized model; is it not?

5 A. It is computer-based model and it is
6 a simulation model, a model that let's you look at
7 "what if" type questions.

8 And in the explanation of this particular
9 model I would like to approach it -- there is a
10 description of the model in Document 33 starting on
11 page 264, but I don't wish to go into that per se. I
12 would like to illustrate the parts of the model,
13 outputs, inputs and process with reference to three
14 overheads that are also in the evidence package.

15 Before I start describing the model, I
16 would like to make a statement that the model is demand
17 driven, and what I mean is that the overall objective
18 in this particular model in the way it approaches
19 looking at the forest, is: It is trying to satisfy the
20 estimated forest industrial requirement, the mill door
21 requirement today and into the future.

22 So the overall objective that we are
23 looking at in this particular set of simulations is to
24 try and satisfy that perceived set of requirements.
25 And I will come back later as to alternatives to the

1 way this model is being run.

2 Document 55 on page 294, shown at the
3 moment as an overhead, is a summary of the outputs;
4 what do you get as a result of running this set of
5 simulations? What do you end up with after running
6 one?

7 Very simplistically, you end up with a
8 computer printout, but what is on that printout, what
9 are the data that we will describe or that model is
10 describing over time. And on that overhead the first
11 item I wish to draw your attention to is the growing
12 stock.

13 So in running this model it will show
14 over time what may happen, the assumptions of the
15 simulation, what may happen to the volume of the forest
16 that is out there through into the future, growing
17 stock. We have talked about that before and we will
18 describe that for the old forest; i.e., the existing
19 forest out there today, what may happen to that over
20 time, and it will also speak of the new forest growing
21 stock over time.

22 And much as the video suggested, it is
23 looking at both those two combined that is rather key
24 to what may happen tomorrow in terms of wood supply.

25 The second major output in the model --

1 before I leave the first one, it's the first one and
2 the numbers that go into the first one or the numbers
3 of the growing stock that Mr. Gordon will speak to in
4 more detail, in the actual simulations that we will lay
5 before you. So the numerics of the growing stock are
6 particularly the output that Mr. Gordon will speak to.

7 However, the model also will produce
8 other outputs and these include the age-class
9 distribution. We spent some time in Panel 3
10 elucidating upon the usefulness of that structure of
11 the forest to give the manager some perception as to
12 what the future may or may not look like and what they
13 may or may not be able to do based on that structure.

14 The third output that comes out of the
15 model is the current annual increment, the growth of
16 the forest. Again, if we come back to what was in
17 Panel 3, ultimately we are trying to marry or match
18 depletions of the forest and growth of the forest. We
19 are back to the discussions and explanations we had as
20 to what sustention -- sustained yield is. So that is
21 also an output produced by the model. The model will
22 show what is happening to the growth of the forest over
23 time.

24 The fourth output of what are the
25 depletions over time - and in this model the depletions

1 are four different kinds, again spoken to in the video.
2 The depletions, in addition to the -- we have the cut,
3 but in turn we also have had natural depletions,
4 natural in the sense of typically fire in Ontario,
5 biological depletions in the sense of pest and/or
6 disease losses and the fourth form of depletion is
7 called zone-out, those areas taken from the timber
8 production base and zoned into some other use.

9 That zone-out includes another
10 sub-category, not only is it zoned-out into, for
11 example, parks or zoned-out into no-cut preserves, but
12 in the way we have run the model, we have also put into
13 zone-outs in this depletion story areas where we think,
14 as we run through into the future, areas will be
15 inoperable from a timber cutting point of view.

16 There is a field industry cannot get at
17 to cut the trees for a variety of reasons.

18 So we have four forms of depletion that
19 are modeled.

20 The fifth of the outputs is the
21 regenerated area. We go through time, how much -- as
22 we are going through the simulation, how much is being
23 put back and/or coming back as regeneration. We talked
24 earlier this morning about artificial and natural and
25 we will speak more about that when we get further into

1 the model.

2 The fifth output, regeneration, how is
3 that tracked over time, what does that look like
4 looking into the future. And, lastly, in the outputs
5 there is maximum allowable depletion, and that also is
6 tracked over time it's an output. How will that
7 change?

8 We talked about how it is calculated, and
9 the model has a simplified version of that. In fact,
10 there are two: There is the maximum allowable
11 depletion with age-class adjustment - we talked about
12 this in Panel 3 - and there is a maximum allowable
13 depletion calculation done for -- the model calls it
14 the normal adjustment, no adjustment for age-class
15 distribution. So we have six outputs described when we
16 run a simulation.

17 I will come back just to stress again,
18 Mr. Gordon particularly is going to describe
19 numerically what is going to happen to the growing
20 stock over time, again, with the realization that there
21 is growing stock out there, you can satisfy industry at
22 a certain level; if there isn't growing stock out
23 there, as the video indicated, we have a problem.

24 MR. MARTEL: Why is maximum allowable
25 cut, which is a form of depletion, and depletion both?

1 DR. OSBORN: This is a calculation, Mr.
2 Martel, of how much --in the yield regulation
3 calculation, how much - I will use the word should you
4 be allowed to deplete, should you.

5 Remember, we described in Panel 3 the
6 calculation done up front and the depletions were not
7 to exceed that under certain circumstances. The model
8 will calculate this maximum allowable depletion but,
9 again, the model is not controlled by that. We come
10 back to this sheet -- the model is driven by demand,
11 industrial demand.

12 There is a reason for including the
13 maximum allowable depletion and the most obvious reason
14 is it's educational, let us see what happens to that
15 calculation as we drive the forest theoretically
16 through into the future. Will we be farther away from
17 the maximum allowable depletion or will we be close,
18 where will we cross, when will they differ, are they
19 diversion or are they conversion, under what
20 circumstances.

21 MR. FREIDIN: Q. Dr. Osborn, these
22 outputs are tabulated. Are they tabulated in some
23 particular time frame?

24 DR. OSBORN: A. Yes. All the results,
25 all of these outputs are given at five-year intervals

1 through time. We run it today and we estimate where we
2 will be at 5 years from today, 10 years from today, 15
3 years from today. Five-year intervals, what do we
4 think the forests will look like at these five-year
5 intervals.

6 The values are tabulated more usefully in
7 a way than giving bundles of tables, is the picture,
8 the graph which is essentially what Mr. Gordon will
9 show, it comes from that tabulation.

10 Q. Just one last question. Is there any
11 limit in terms of how far into the future you can
12 simulate assuming -- well, is there any limitation on
13 the number of years into the future which you can
14 simulate?

15 A. Not as far as the computer is
16 concerned, but in terms of the usefulness --the
17 usefulness of the numbers. As was stated actually back
18 in Panel 3, the further into the future we look, the
19 more speculative, the more uncertain you could have
20 what tomorrow looks like. So we have typically run
21 this for a 100-year future.

22 It could have been a 200-year, it could
23 have been a 50-year future and we will explain why we
24 have run it for the number of years we have run it when
25 Mr. Gordon presents his numerics, his numbers.

1 Q. Dr. Osborn, I understand that man has
2 to get involved in this particular process with the
3 computer and has to, in fact, input certain information
4 in relation to certain topics or factors into the
5 computer?

6 A. Yes, there are inputs. Just before
7 we get into that, perhaps a quick look page 298 which
8 Mr. Gordon will come back to, but a quick look at 298
9 at this stage will exemplify that first kind of output.

10 Page 298 shows what may happen to the
11 growing stock over time, old forest/new forest, both
12 combined, for the assumptions that were inputted into
13 that particular scenario, that particular run of the
14 model.

15 Exhibit 54A which is...

16 Q. Page 293.

17 A. Thank you. No, 54 is 292.

18 Q. I'm sorry.

19 A. And this essentially is a list in 54A
20 of the inputs that get loaded into the model, and there
21 are some data that are loaded right up front that
22 change over time to keep growing stock, some data that
23 are loaded right up front that are held constant, we
24 will get into those, and some data that are loaded at
25 the five-year intervals as we go through time in

1 running the simulation.

2 The first input of concern is the
3 production forest land base and the data that are
4 loaded into the model, the data that Mr. Gordon will
5 speak to, are those of the Forest Resources Inventory
6 for whatever area we will describe, be it region, be it
7 the province. The data from the FRI are inherently the
8 initial input into the model, the production forest,
9 FRI term, land base; i.e. the hectares by age-class.

10 And, in addition, the volumes of that
11 existing forest, the volumes out of the Forest
12 Resources Inventory are also read in and because of
13 knowing the volumes, the areas and the age-class, one
14 can derive the yield table, the volume per hectare
15 values of the existing old forest.

16 So this essentially is what is initially
17 loaded in the first three inputs is the old forest. We
18 put that in, that's where we start from, where are we
19 today.

20 The next two items that are loaded in
21 are -- the first one is the age of death and the age of
22 death is a clear realization that the trees that are
23 out there today and tomorrow will not live forever. If
24 they are not cut, if they are not burnt, if they are
25 not eaten, they will ultimately die of old age. And so

1 the model will not let you cut 300-year old trees just
2 because the computer has got them left in there. The
3 model says categorically at a certain age you die. A
4 degree of realism.

5 The second input -- I beg your pardon, the
6 third input is the rotation ages and the rotation ages
7 are in there because they are a necessary component of
8 the maximum allowable depletion calculation. The
9 factors required - and we will speak about those a
10 little later - are the rotation ages.

11 The next item that goes in there and the
12 last of the constants, so to speak, is a set of new
13 forest yield curves, new forest yield curves.

14 Just to stop for a moment. When Mr. Cary
15 spoke about the production policy of 1972 at the
16 beginning of the week, he talked about a 20 cunit per
17 acre, 10 cunit per acre set of predictions for the
18 future.

19 The new forest yield curves read into
20 here are analogous to those. What do we estimate, or
21 how do we estimate the new forest will develop.

22 Mr. Gordon will come back to this in a
23 moment, and I am just going to use it, Mr. Chairman, as
24 a reference and then take it away, but you will get
25 hard copies of it.

1 What we are talking of is putting in the
2 curves, the yield curves, volume per hectare values -
3 they happen to be in gross total volumes - but volume
4 per hectare values over age for the new forest, and in
5 the model we have four new forests.

6 We will speak about these in more detail,
7 but they, in a way, exemplifie something Mr. Martel was
8 asking about before lunch as we go to extensive, to
9 basic, to intensive, to elite, the amount of investment
10 effort increases. We will come back to them, but
11 literally a little effort, medium, a lot, a great deal.

12 The idea of there are certain areas it
13 pays us to invest, certain areas to concentrate
14 efforts. That concept that was alluded to earlier this
15 morning is portrayed in this particular model. So
16 there are four kinds of new forests being spoken to.

17 THE CHAIRMAN: Just to reference this
18 with your commentary, what document is that?

19 MR. FREIDIN: That is part of -- well,
20 part of Document No. 42. Document 42 starts on page
21 279 and it is three pages in length.

22 We have handouts here of a number of
23 additional documents that Mr. Gordon will be using in
24 his explanation and the overhead now is a copy of what
25 we will be referring to and asking that it be sort of

1 marked as page 280A, so when we get to that everybody
2 will have a copy. So that's what is up on the screen
3 and what Dr. Osborn is speaking to now.

4 DR. OSBORN: There is a picture that will
5 go with those words. They are in the
6 evidence-in-chief.

7 MR. TUER: It is not in here.

8 DR. OSBORN: The picture is not there,
9 the words that go with it are. I just want to
10 illustrate forest...

11 So we have now loaded in the initial old
12 forest and its yield table, the age of death, rotation
13 ages, and the new forest yield curves. The initial
14 data are now in the system.

15 The next series of inputs are something
16 that have to go into the model every five years.
17 Because this is a computer simulation model, we take a
18 hundred years down to five minutes on the computer and
19 we put them in at thirty-second intervals.

20 MR. FREIDIN: Q. Dr. Osborn, just one
21 moment then. You did made reference then to certain
22 factors would be held -- certain inputs would be held
23 constant. Could you just identify which ones were held
24 constant and what that means?

25 DR. OSBORN: A. Yes. The age of death

1 is held constant. Once the age of death is loaded -
2 and there are ages of death for the old forest and the
3 new forest - those ages of death are held constant
4 right the way through the entire simulation for the
5 next hundred years. The model assumes that the old
6 forest will always die at year whatever, 100, 120,
7 whatever the numeric value entered is. So age of death
8 is held constant.

9 Rotation age for the old and new forest
10 is held a constant and the new forest yield curves are
11 held constant throughout the entire simulation.

12 But now we start into every five years
13 putting values in that may vary every five years. They
14 don't have to, but they may. And the first of those is
15 the demand, and now we are talking of the timber mill
16 door demand, so we are talking of a volume, a net
17 merchantable. Volume, we estimate the industry once
18 every five years, I believe, so values in at the mill
19 door.

20 That volume, that demand is a net
21 merchantable, but the model is modeling the forest out
22 there and the forest is in gross total. And so there
23 is a factor required at five year intervals called
24 utilization and mill recovery factor. There are two
25 pieces of that.

1 The utilization part of that factor is
2 some arithmetic to take our net merchantable tree back
3 up to gross total. We described before how we got from
4 gross total to net merchantable. We take away the top
5 and the stump and you take out the defect and now we
6 are going in reverse.

7 Mr. Martel, earlier you asked if the
8 value of 9.1-million cunits in 1972 was net
9 merchantable, what would we need out in the forest
10 gross total. This factor speaks to that sort of
11 question: How do we go from what is coming in the mill
12 door back to what is standing upright; top, stump, cull
13 in the forest.

14 The utilization factor and a realization
15 that over time the actual process, saw mills, the
16 veneer mills, pulp mills, may well change its
17 efficiencies and if it does, what's required to get a
18 cunit -- a cubic metre in the front door net
19 merchantable. Now, maybe we only need less trees out
20 there in the forest because of the efficiencies of the
21 mill. Two factors in this component of the model.

22 We are trying with this utilization of the
23 recovery factor to walk the model back to the gross
24 total volume because that's what the FRI is all about,
25 and obviously back to hectares because that is what the

1 bookkeeping of how the modeling actually works.

2 Taking away the mill demand, taking away
3 the factor, three other depletions, and we talked about
4 those: The fire loss. Every five years, how much goes
5 up in smoke; pest loss, every five years how much goes
6 down the throats of insects; zone-out, every five years
7 how much gets taken away for some other usage and/or we
8 can't get to.

9 When we finally reach, in the depletion
10 story, a sort of transition factor, every five years
11 how much of the cut-over from which we have taken the
12 trees - we have got the volume, yes - but a proportion
13 of that land will not come back into production because
14 it is under a road or a landing.

15 A realization, much as has been described
16 earlier this morning, that a piece of the real estate
17 is going to go under something and not be regenerated.

18 The last but one input -- or the last
19 input really is a two-component piece, regeneration
20 level and assignment. Again, this is every five years
21 we are entering in our value in the model. Every five
22 years somebody has to decide what value goes in.
23 Regeneration is quite simply the number of hectares we
24 assign, treat in one of those four kinds of new
25 forests. How much will be put back as elite

1 plantations; how much will go back as plantations.

2 Four kinds of new forest. For each kind
3 of new forest there has to be a numeric value of how
4 many hectares have gone back into that kind of forest.
5 Again, a simulation and a prediction of what may
6 happen.

7 And the last part of this, the
8 assignment, is a realization that although we plant -
9 and the evidence presented this week exemplifies this -
10 although we plant, it doesn't always grow the way we
11 would like it to grow.

12 Just to step into this for a moment.
13 Although we plant -- although we think things planted
14 will walk along the line that describes the new forest
15 intensive, which is planted, although we plant 10,000
16 hectares and we hope it will progress along that blue
17 line, the line of planting, we recognize it doesn't
18 always happen and the assignment ratio, again the five
19 years, asks how much of that forest in level 2 do you
20 think will grow as level 2, how much will grow as level
21 1, how much will grow as level 3.

22 There is a realization: It doesn't all
23 grow the way you would like it to grow. The
24 regeneration values may stay constant over time, but
25 the assignment ratios may change.

1 An example. At this point in time, as
2 SOARS indicated, we are not getting a hundred per cent
3 success of what we would like to have happen. As we
4 get educated over time that amount will be more
5 successful, may change.

6 Q. And, Dr. Osborn, I am sorry, I wanted
7 you to finish with that before I interrupted you.

8 A. Sorry, one last comment.

9 There is on the input document an item
10 called barren and scattered. It really isn't an input,
11 it is there to remind the modeler that, in this
12 particular way, the barren and scattered of the forest
13 at the beginning has been held constant.

14 We have not allowed it to be used in the
15 regeneration part, we have kept it as a constant.
16 Whatever is there today is held constant in this
17 particular way we have run the model, which is a degree
18 of conservatism and change in the way we have done it,
19 it is totally constant.

20 Q. Dr. Osborn, in that series of inputs
21 you described the new forest yield curves. You also
22 made reference briefly to four different types of
23 forests, I think they were referred to on the overhead.

24 I am just wondering whether this would be
25 a convenient time to explain to the Board what those

1 four types of forests are?

2 MR. MARTEL: Can I ask a question before
3 that on the barren and scattered.

4 Could the scattered develop - maybe not
5 the barren as much - but the scattered area, as I
6 understand it, could it not through regeneration -- you
7 say it is a constant. But, could it not change?

8 DR. OSBORN: Yes, Mr. Martel. When the
9 analyses were performed in 1982 that area of barren and
10 scattered, and even in Ontario at that time, which was
11 loaded into the model the way we describe it now, was
12 allowed to be available for regeneration.

13 It is out there, why can't we get at it
14 and do something with it. When we ran the analysis in
15 1982 we let the forest manager access it in the model.
16 The difficulty was knowing when and how much was going
17 to be put back because the timing of the amount that
18 comes back in can have some dramatic impacts upon the
19 conclusions drawn from the numbers.

20 For example, why can't we put it all back
21 in in the first five years. Who is to say that what's
22 out there right now isn't sitting very, very close to
23 being back into the inventory in terms of having trees
24 on it.

25 It is such a speculative thing and upsets

1 the results of the model that when we did this in '82
2 we realized that this was a confounding issue that was
3 very hard to get serious information about. So when we
4 performed the analyses this time we deliberately held
5 it as a constant. It is almost as if conceptually that
6 area is not there.

7 Now, I said -- when I made the comment
8 that's a degree of conservatism, almost certainly parts
9 of that in real life will come back in. We, at the
10 moment, have deliberately taken it out with the
11 realization that, yes, when we get a little bit more
12 knowledge about the real trends in that we could walk
13 it back into the model.

14 All I have done at the moment is just
15 tell you quite categorically, rightly or wrongly, we
16 have taken it out of the analysis this time. But in
17 real life we know for a fact it will come back in.

18 MR. MARTEL: When will you consider
19 entering it into the model, at what stage? As you run
20 this, you add new material every five years. Is there
21 some time down the road where you are going to consider
22 at least reviewing the scattered stuff and entering it
23 into the model?

24 DR. OSBORN: Yes. Right now - and I have
25 described the regeneration part - we will regenerate to

1 the new forest the areas that have come from the cut,
2 the burn, the pest loss in that first five-year period,
3 all those hectares all go into barren and scattered,
4 and in the first five years they get put into the new
5 forest.

6 So the existing cut-over, the existing
7 depletions, as the model gets run, get regenerated.
8 All we have done in the model at the moment is the
9 original data sets, barren and scattered left out.

10 You ask: When will it come back in. As
11 we learn in real life - real life, forget the model -
12 if we learn in real life a little bit more about when
13 and how that comes back in, the model will get refined
14 to include that at the appropriate level. And you
15 hinted at when will it come back in and at what level,
16 and that's a dilemma. We are not sure at the moment.

17 So rather than bring that in and upset
18 the analysis, we have deliberately just kept it right
19 out of the analysis at the moment. There is a bias, a
20 deliberate bias in the model.

21 MR. FREIDIN: Q. Dr. Osborn, I just
22 referred you to the fact that you have referred to
23 these four levels of forest and to the new forest yield
24 curves, and I don't want to take you out of any order
25 that you had, but would it be an appropriate time to

1 describe those particular forests now?

2 DR. OSBORN: A. Yes. If we turn to page
3 265 of the evidence. On page 265 at the top of the
4 page it starts off:

5 "It was hypothesized that for conifers
6 there will be four different kinds of new
7 forest."

8 And to read the words that are at page
9 265:

10 "Each of these four reflected a
11 different level of regeneration effort."

12 And the four were the four actually that
13 Mr. Gordon spoke to yesterday when he was talking of
14 the different free to grow kinds of forests in the FTG
15 standards.

16 So the first of those is elite, and elite
17 is essentially a forest where we will plant
18 genetically-improved stock. When we plant it, we will
19 also tend it and make sure it grows. So the elite
20 plantations are those that are based upon
21 genetically-improved stock.

22 Q. Just so you are aware from the
23 document that you put up, Dr. Osborn, elite is referred
24 to by Mr. Gordon's document as new forest 4?

25 A. Yes, I am sorry. That is the --

1 okay, Level 4 of the forest. And there was a
2 deliberate reason why the numerics were changed to be
3 1, 2, 3, 4 in that sequence. Level 4 is the elite.

4 The third level is the plantations,
5 planted stock, which I think is called intensive, and
6 again we try to divide the new forest into four
7 different kinds reflecting as best we could the records
8 we kept and the actions we were typically undertaking.

9 As we will come to in a moment, how do we
10 get data for some of these items. So we structured the
11 model in such a way to fit with the data sets, an
12 inherent problem of modeling.

13 So plantation, planting. One of Mr.
14 Cary's categories of silviculture at the beginning of
15 the week was Level 3 kind of forest, intensive. Level
16 2 was basic, and basic was primarily those
17 silvicultural activities of modified harvesting and
18 seeding.

19 So, again, we are trying to tie the model
20 structure with the kind of records and information that
21 we have. So the Level 2 kind of forest was essentially
22 seeding, modified harvest cutting and scarification, a
23 relatively low level of investment. And the Level 1 of
24 the new forest was extensive in terms of the title and
25 that was natural regeneration.

1 Now, the words and the brief descriptions
2 are given at the top of page 265.

3 We have used the graphic in this form, as
4 you will see when Mr. Gordon presents his evidence, to
5 sort of use as a continual reminder as to what those
6 four kinds of new forests are when we start to look at
7 some of the numerical results.

8 MR. FREIDIN: Mr. Chairman, although the
9 chart up there is a reproduction of information which
10 is put in, which is in the document already, it is not
11 really produced quite in that fashion and I am
12 wondering whether that should be marked as an exhibit.

13 THE CHAIRMAN: Very well. Exhibit 145.

14 ---EXHIBIT NO. 145: Overhead chart reproduced from
15 Document 38.

16 MR. FREIDIN: Q. Have you finished
17 describing the inputs at this particular stage?

18 DR. OSBORN: A. Yes. That is the list
19 of the inputs that go in. And essentially what is
20 going to happen is every five years you load those
21 variables, the inputs that will change, and in the
22 running of the model the model will then take those
23 data, it will process those data and end up with
24 regenerating those outputs.

25 Now -- so what does that really mean and

1 how are the steps of the model actually run, what are
2 the mechanics of how this works?

3 Q. Dr. Osborn, if I could just go back
4 to your comment about saying that the computer is
5 loaded and then it does simulations, tells you things
6 at five-year intervals.

7 Are you saying that you actually run the
8 computer every five years or are you saying something
9 else?

10 A. I am saying something else. I am
11 saying I sit down - any of us could sit down with the
12 computer - we key in today, it takes a minute, we key
13 in what do we think is going to happen for the first
14 five years, it takes five seconds, ten seconds, the
15 computer does the calculation comes back and says: All
16 right, five years from now I think your forest will
17 look like this.

18 Now, what are you going to do? Key back
19 in what you think you are going to do in the year 1993.
20 The model goes away, comes back five seconds later and
21 now says: Okay, the forest now looks like this. Now
22 what are you going to do? So in ten minutes we walk
23 through a hundred years.

24 And as the video said, it is a lot easier
25 to move the lines around and play those simulation

1 games much faster, you can do a lot more simulations,
2 learn a lot more without having to spend a great deal
3 of time and effort in real life of spending small
4 fortunes. You can run the model over a series of
5 iterations to demonstrate what is important, what is
6 not important, what happens if I do this, what happens
7 if I do that. And that is the whole merit of
8 simulations.

9 So within a time frame of ten minutes we
10 can essentially look at what may, may happen to the
11 forest with all the assumptions in the data in the way
12 we processed it to a forest over that next hundred
13 years. The difficulty of all of this is knowing which
14 of those many simulations is the logical, the most
15 right. We are not God, we cannot calibrate that
16 crystal ball very perfectly in any scenario.

17 What we have done and what the evidence
18 will present in a moment is some estimates of what we
19 think may happen under certain circumstances and these
20 are some of many. What we have done as far as the EA
21 was concerned was present this methodology, this tool
22 with some results, with a clear realization that to do
23 this seriously in looking at what the forest might be
24 like you need to analyze this over many iterations,
25 many analyses, and look at what they may entail.

1 You realize that what we will talk about
2 and what we will present is only some of a series and I
3 am quite convinced everyone in the room could ask:
4 Well, what would happen if you change this? Every five
5 years there are up to 16 variables that change, the
6 number of possibilities gets astronomical very quickly.
7 So realize that all we will show is a certain set of
8 simulations for a certain set of assumptions.

9 In answer to your question, the hundred
10 years takes place in ten minutes.

11 Q. Do I understand that in terms of
12 actually doing the -- coming up with the information to
13 put in the machine it takes somewhat more than five
14 minutes?

15 A. Absolutely. The time and effort
16 taken to understand the problem, formulate and
17 structure the model, find the data, recompile it into a
18 form and fashion that fits and understand all the
19 assumptions, and the last part is the part that I
20 find -- I think is the most important, understand the
21 assumptions inherent in how that happens, how that is
22 processed are key to being -- to providing a useful set
23 of answers.

24 But, yes, the upfront thinking,
25 collecting, recompiling is incredibly time consuming.

1 The simulation run per se is miniscule.

2 MR. FREIDIN: Mr. Chairman, I don't know
3 what you were thinking of in terms of a break. Dr.
4 Osborn is going to get into another area where he is
5 going to describe actually how the model works.

6 THE CHAIRMAN: Okay, why don't we then
7 take a short break for about 15 minutes.

8 Thank you.

9 ---Recess taken at 3:45 p.m.

10 ---Upon resuming at 4:10 p.m.

11 THE CHAIRMAN: Thank you. Be seated
12 please.

13 MR. FREIDIN: Q. All right. Dr. Osborn,
14 I understand that you have completed the review of the
15 inputs and that you are now going to explain what the
16 model does with all of the information that is
17 inputted?

18 DR. OSBORN: A. Yes, and I would like to
19 use Document 38 on page 275 as a guide as we walk
20 through the steps on page 275.

21 As the diagram shows, we have entered the
22 land base, we have described, we have entered the age
23 of death, rotation age, and the yield curves and we
24 stated already that those are held constant, items 2,
25 3, 4 through any particular simulation.

1 What happens now in this model, what
2 happens inside the machine when we enter at five-year
3 intervals the items 5 to 12 on this list of inputs?
4 What actually happens mechanically inside the machine,
5 trying to emulate real life?

6 The first item we talked of was the
7 demand. The demand is a net merchantable volume of
8 whatever species is under investigation. So that is a
9 volume figure that gets entered and says for the next
10 five years we need this much volume. We enter the
11 utilization and the recovery factor, and that factor
12 will arithmetically convert that net merchantable
13 volume back to gross total volume, and while the forest
14 still has old forest, that demand will be met from the
15 old forest.

16 And, in fact, the model will only take
17 the old forest first and will take the old forest until
18 the old forest has completely been taken, and only then
19 will it go to the new forest. That is the way that the
20 model runs. In real life that will not be exactly the
21 same, almost inevitably there will come a point in time
22 where there is a mix, cutting old, cutting new. With
23 the way the model runs, it takes the old forest in its
24 entirety, before 30, 40, 50, 60 years down the road it
25 will start with the new.

1 THE CHAIRMAN: Why does it do it that
2 way?

3 DR. OSBORN: Simple answer, Mr. Chairman.
4 It is easiest to model that way. The difficulty would
5 be if you modeled real life. First you would have to
6 run to know when you are going to run out of new forest
7 and you would run out of the old forest. If you did
8 only old forest, so 40 years down the road, 60 years
9 down the road I have run out of old forest.

10 Then I have got to think: Well, 40 years
11 down the road what will be my mix. Now, that is
12 getting rather speculative trying to work out what that
13 mix would be. To prevent having to go through that
14 speculation, this initial sort of run did it in a very
15 simplistic fashion.

16 In fact, there are several questions
17 along exactly the same lines of why we model this way
18 knowing in real life it will not be exactly the same.

19 The utilization factor puts us back in
20 gross total volume and in the old forest gross total
21 volume it will be taken from the oldest age-classes
22 first in the model. So the model goes and looks at
23 the old forest yield table, you need this much volume,
24 how many hectares of the old age-class does that
25 require, and those numbers of hectares, therefore, that

1 get cut to satisfy, to produce that volume, are
2 depleted from the oldest age-classes.

3 So I need 10,000 cubic metres. I look in
4 the yield table, 10,000 cubic metres is on the 130-year
5 olds and 125-year olds and 120-year olds. All of those
6 hectares from those age-classes get taken away from
7 those age-classes and put in the barren and scattered.

8 With one minor caveat. Cut-over,
9 remember, is adjusted for roads and landings. So if I
10 have to cut 5,000 hectares to get that volume to put in
11 the mill door, I don't get all 5,000 hectares back in
12 barren and scattered, I get the 5,000 minus whatever
13 the roads and landings were taken away.

14 The three depletions of fire loss, pest
15 loss, zone-out, they all get put in in hectares. We
16 estimate every five years how many hectares in the case
17 of fire go up in smoke. The model takes those hectares
18 from all age-classes proportionally, it doesn't burn
19 the oldest the way we cut, it will burn proportionally
20 across all age-classes.

21 So talking with the experts in fire, is
22 that what happens in real life: Yes, no, maybe. There
23 are all sorts of answers from experts from that one,
24 but the rationale of doing it proportionally if you
25 knew what was done and it is as good as any of the

1 experts know about how fire takes place. So we have
2 done it that way, recognizing it may not be exactly the
3 way fire happens, but we know what we have done in the
4 model.

5 An implication in that assumption that
6 may have a bearing upon the results. Important. Pest
7 loss. Pest loss is even more of a problem, taken in
8 hectares, which in itself is difficult, because the
9 pest loss is really made up of two parts, there is an
10 outright kill; the pest causes trees to die, stands to
11 die. And that part of it is fairly straightforward,
12 and we have used the pest loss much like fire loss in a
13 way, proportionally across age-classes, kill. The bug
14 comes and jumps, stands die.

15 Disease, much more difficult to model.
16 Disease tends to be rather inciduuous and what it does
17 is slows the growth rates down rather than outright
18 kill. This model unfortunately is really driven on an
19 area basis, hectares, and in fact in the growth rate it
20 is more difficult to model. We have, therefore, taken
21 the pest and the disease factors as a kill factor. We
22 have taken hectares away proportionally across all
23 age-classes for the pest loss.

24 Now, we know for a fact that for bugs
25 that is not bad, for the disease, that isn't quite what

1 will happen. Again, dilemma if you are trying to work
2 data in with how model works. Spread across all
3 age-classes is that true, do bugs eat all trees of all
4 ages proportionally. Again, the experts have some very
5 variable opinions.

6 Zone-out areas, different approach. When
7 is the demand going to be affected because of
8 inoperability and/or land not available. When you are
9 trying to cut it, when you are trying to get at it to
10 cut it. So the zone-out hectarage, the estimate of how
11 many hectares come out in zone-outs gets taken from the
12 oldest age-classes, competition with cutting for the
13 mill. So the approach and the assumptions in the model
14 of how we handle the depletions vary.

15 Roads and landings, we have said applies
16 to the area cut, cut a hundred hectares, you get 95
17 back into the base and five go into permanent roads or
18 landings.

19 With the fire loss, the pest loss, the
20 depleted hectares come back into the base, they go to
21 barren and scattered of the same covertime as the model
22 is running. If we are dealing with softwoods, we burn
23 softwoods, the entire unburnt area comes back and
24 becomes barren and scattered in the softwoods. Big
25 assumption in the model.

1 Pest loss, same way. Bugs eat trees,
2 stands die, they assume they go into barren and
3 scattered of the same covertime as the model is working
4 on. So the fire loss and the pest loss, the hectares
5 come back again. We might not get the volume of them,
6 but the hectares are back in the base.

7 Zone-out is a different story. The
8 zone-out we lose forever, the hectares that are in
9 zone-out are gone. If it goes into parks, it stays in
10 a park. It may or may not be real life down the road.
11 That is the way the model runs, it is speculative to
12 know whether or not 40 years down the road park X, Y,
13 or Z will be put back into commercial timber
14 production.

15 One other minor comment about the
16 zone-out areas. There were areas in there for
17 inoperability, areas that we said we do not think,
18 especially in the old forest, that we will be able to
19 operate for timber production. Take those hectares
20 away, you can't go and cut the trees, you don't get the
21 volume.

22 When you are coming into the new forest,
23 that context has changed. The idea of inoperability in
24 the new forest is modified. As we run through the
25 model 30, 40, 50, 60 years down the road the zone-out

1 approach varies, approach varies from new forest to old
2 forest in some parts.

3 Regeneration. We have got this pool in
4 the first five years of acres cut, acres burnt, acres
5 eaten. We have got a pool of barren and scattered. It
6 is that entire pool that is available for regeneration,
7 the entire pool.

8 And the model says: How much are elite.
9 Let's work it on new forest Level 4? How much elite
10 are going to plant genetically-improved stock, put in
11 the hectares and tell me what you think is going to
12 happen to the assignment ratio. Take that number away
13 from the pool, how much are you going to plant, get
14 that answer, take that away and put that into new
15 forest Part 3, the assignment ratio.

16 Q. The assignment ratio...?

17 A. Is deciding the fate of that
18 plantation, how much grows at a plantation Level 3, how
19 much grows at a lower curve, the Level 2 type forest
20 curve. Work down right until eventually all we have
21 got left in the pool, we have been through new forest
22 4, 3, 2, the entire balance of the pool goes in as
23 natural region.

24 We will come to what happens to that in
25 terms of what that means in just a moment. We will

1 speak to that entire pool in the five years. Nothing
2 gets dropped out, nothing gets added in.

3 So that is essentially what is happening
4 as you go through the process and the modeling, all the
5 mechanics work on the hectares. We start off with
6 hectares, we take hectares away because we deplete, we
7 put hectares back because we regenerate. The whole
8 model is running around in a hectare basis.

9 Having got all that in and those
10 operations taking place, the model will then do certain
11 things, including the generation of the outputs, and it
12 will do certain things that I didn't list in the
13 outputs. But, again, just to be aware of some of the
14 things it can do that are helpful in terms of
15 interpreting and understanding what may be happening.

16 For example, I mentioned age of death.
17 Now, if there is any area of the forest in there at an
18 age-class that exceeds the age of death, the model will
19 automatically kill those trees before they are even
20 available for cutting or burning or what have you.

21 So irrespective, I don't have to enter
22 that. Because I have got the age of death in there,
23 the model will automatically kill any area of the trees
24 that, in the course of the last five years, have grown
25 into or beyond that age of death.

1 MR. MARTEL: Can I use a figure just for
2 clarification. You are using a hundred-year cycle or a
3 hundred-year rotation, I think you said?

4 MR. OSBORN: I run the model for a
5 hundred years into the future, Mr. Martel.

6 MR. MARTEL: Okay. Then are you using --
7 let's say, at 120, do they become, the trees that you
8 consider, let's say, at 106 or 104, those are the ones
9 that the model automatically kills off?

10 DR. OSBORN: It has got no relation to
11 how many years in the future I run it.

12 Let me stay with a numerical example.
13 Age of death is 120. When I load -- let's say, for
14 example. I load the data in right now and I have some
15 FRI data that was 115 to 120 age-class, a hundred
16 hectares of it. In the first five years I don't cut it
17 and I don't burn it and I don't deplete it and I don't
18 put it in a park.

19 Five years go by and that now becomes
20 age-class 121-125 and the model says: You cannot
21 exist, you are past the age of death, and the model
22 right then says: Goodbye, back into the barren and
23 scattered. Okay?

24 MR. MARTEL: Zap.

25 DR. OSBORN: In addition to those sorts

1 of things, the model will calculate the average age of
2 the old forest and the different new forests.

3 Now, two values in that. First, to give
4 you some indication of what age-class am I actually
5 depleting, perhaps of interest to forest industry. As
6 I go through this the old forest gets younger, yes,
7 maybe, it depends how fast you deplete it.

8 What about the age of the new forest,
9 what new forest ages do I end up cutting. Does that
10 make sense, do we think the trees will be big enough.
11 So what age, what is the average age of the forest,
12 what is the age-classes?

13 Also, that's necessary to calculate to
14 calculate the maximum allowable depletion too. So
15 there are some other pieces of calculation go on that I
16 won't dwell at length on, the mechanics of how it
17 works.

18 What is key to all of this in this
19 processing, what is key to it, some of the things I
20 hinted at, is getting the data in a form and fashion
21 from wherever - and Mr. Gordon will speak at some
22 length about the dilemmas in getting real numbers into
23 this model from a variety of sources - getting the
24 data, recompiling it to fit into the assumptions
25 inherent in the way the model works, and understanding

1 what those assumptions mean.

2 This is really why I spent some time with
3 how the inputs work, but I also need perhaps to explain
4 the mechanics of how the assumptions of how some of
5 those data were brought about because they, in turn,
6 have a bearing on interpreting the results.

7 So if I step into what inherently are
8 some of the assumptions behind the whole of the model.
9 For example, in the growing stock, we will typically
10 look at the softwoods and the intolerant hardwoods. We
11 explained why.

12 In the softwoods, the assumption is made
13 that the softwoods are all softwoods, the FRI data is
14 made up of entirely softwoods. It is an assumption
15 inherent in the model and yet the FRI data we know for
16 a fact isn't all softwoods in those softwood working
17 groups. We know the jack pine stands aren't pure jack
18 pine. So there are some assumptions inherent in the
19 model that, again, we have to be cognizant of.

20 It assumes in the model that it is done
21 for a piece of geography, a region. It assumes in the
22 way they are depleted that if the mill wanted 10,000
23 cubic metres, all the age-classes out there are all
24 equally available. The one on the mill door step is as
25 equally available as the one that is 150 kilometres

1 away.

2 It is inherent in the way the model
3 depletes it, depletes the oldest first. The model has
4 nothing it in terms of geography that says that that
5 120-year old stand is many miles away, with a minor
6 proviso about that operability factor I mentioned. So,
7 again, some geographical assumptions in that growing
8 stock.

9 The age of death, speculative. The model
10 assumes that all 120-year old stands die. We know that
11 is not a fact too. We can find 130, 140, 150-year old
12 spruce stands and we could also find ones at 90 and 80
13 that die of old age, but it's averaged.

14 Rotation age. There is a rotation age in
15 there for the old forest and the four levels of new
16 forest. Now, the rotation age is in there to calculate
17 the maximum allowable depletion primarily, and I have
18 said earlier that this model was very much demand
19 driven.

20 The model could be run, although it is
21 not run, could be run in terms of yield control and MAD
22 control. The way it is run at the moment it is not, we
23 have driven it by demand. Whatever we want as a mill
24 demand is what we are trying to satisfy.

25 So the question surfaces as to why, given

1 we have got yield regulation, given I spent some time
2 in Panel 3 explaining yield regulation, why have I now
3 completely ignored it. There is a variety of reasons
4 why this is so.

5 The first: It is done for an aggregate
6 piece of geography. It is done, as we will hear later,
7 for a region, and we don't do yield regulation for
8 those levels of geography. As we have described, we do
9 them at the management unit level.

10 It is done, as you will see, for
11 aggregate working groups. We will describe softwoods
12 in totality, intolerant hardwoods, poplar and white
13 birch combined. Again, we don't manage that way, we
14 don't yield regulate that way, we do them by forest
15 units.

16 So the way the model is being simulated
17 isn't quite an echo of the management unit/forest unit
18 level.

19 Of course, we have combined all the
20 softwoods together, including all the way from balsam
21 fir to white pine. Rotations for those could range
22 from 60 to 120 years. What rotation do we pick for
23 such a covertime. The impact on the allowable cut, and
24 that's what the yield regulation is all about.

25 So, again, because we have aggregated the

1 geography and aggregated the species, we haven't
2 applied yield control in driving the model.

3 And the last is a mostly philosophical
4 point. This is a simulation to see what might happen
5 if certain circumstance went this way and to watch the
6 interactions between the variables. So we've taken
7 yield regulation away, that's one of the variables in
8 the way these simulations have been done.

9 Now, the second question that spins out
10 of that is: Could the model be run with yield control
11 of MAD. And the answer is yes, it could, except it
12 would make much more sense to do that if you did it at
13 the management level/forest unit level and that's not
14 the level we are going to demonstrate and not the level
15 we are going to portray today and tomorrow.

16 In going through some of the other
17 assumptions, the next factor we come to is the new
18 forest yield curves. And I very briefly earlier on
19 showed you a picture of the new forest yield curves.

20 Now, here is a set of data that was
21 really hard to find. We talked about 1972's 20 cunits
22 and 10 cunits per acre. We all said they were
23 simplistic.

24 In 1982, we tried to improve on those
25 estimates of 20 and 10 cunits per acre. So we went

1 looking for available data, logic and deductions of
2 what would the new forest yield curves look like, what
3 were the best estimates of how the new forest will
4 grow.

5 Q. Could you advise how that was
6 determined; how that assessment was made?

7 A. At page 265 of the evidence-in-chief,
8 about a third of the way down, the page starts: The
9 set of the words that describe in that document very
10 briefly how we went about determining the new forest
11 yield curves.

12 And the line of logic, this is back --
13 primarily back in some thoughts of 1982, when a group
14 of people, a group of experts from a variety of
15 background in mensuration, growth and yield, a group of
16 people sat down to rationalize what these values might
17 look like.

18 And if we start at the extensive forest.
19 The extensive forest is a forest that is being created,
20 a new forest being created from natural regeneration.
21 The assumption was made that the development of that
22 forest was echoed by the natural stands as exemplified
23 in Plonski's yield table that was described at some
24 length in Panel 3.

25 So we felt we could go into those yield

1 tables and use those data because that extensive
2 natural regeneration forest we thought would be similar
3 to those of natural stands.

4 Because the new forest we were
5 particularly looking at was primarily made up of spruce
6 and jack pine, in fact, 95 per cent of the softwoods
7 are spruce and jack pine, we used a mix of the spruce
8 and the jack pine yield tables from Plonski's tables.
9 And because the average site class in Ontario for those
10 two species is approximately site class 2, we used a
11 site class 2 table.

12 So we looked at the existing FRI, we
13 looked at the proportions of the working groups, which
14 is primarily jack pine and spruce, primarily site class
15 2, let's use those tables.

16 We made two further provisos. The first
17 was that we did not expect the level of stocking after
18 cutting or burning or being depleted by pests or coming
19 back naturally, to come back at a very high level, and
20 so we started that curve at a 40 per cent level of
21 stocking.

22 And we estimated over time that that
23 level of stocking would increase - and there is good
24 mensurational background for that happening in real
25 life - would increase to a level of 50 per cent stocked

1 by rotation age which in the case of the new forest
2 extensive is 120 years.

3 So we felt that was a relatively
4 realistic approach to the new forest for extensive with
5 one other proviso and that was: We expected there to
6 be a considerable lag from the time of the disturbance,
7 whether it is the cut, whether it is the burn,
8 considerable lag before something actually happened.
9 A delay period, a regeneration period, and we decided
10 that would be 20 years.

11 So for the extensive new forest, after
12 something happens to it, there is a 20-year wait and
13 then it walks back up to site class 2's curve, 40 per
14 cent stocked and crawls up to 50 per cent stocked. And
15 that was an estimation from the data and evidence that
16 we had of how we thought the extensive new forest would
17 develop.

18 So then we looked at the basic new
19 forest, and the basic new forest is essentially
20 modified harvest cut, seeded, scarified. Again, some
21 similar lines of logic. We can't find and there are
22 not easily available extensive literature, in and
23 around Ontario or adjacent either provinces and/or
24 states describing how these stands were developed. So
25 there aren't extensive data to fall back on and say:

1 This is how it would grow. There just aren't records
2 that far into the future of the species that we have in
3 Ontario for that.

4 So similar lines of logic, it is going to
5 be primarily jack pine and spruce, conservatively,
6 let's say, it is site class 2, low quality sites, low
7 level of investment. What might be different because
8 of the seeding and the modified harvest cut techniques
9 is the stocking will be improved, and because of the
10 action, there won't necessarily be that delay.

11 So that gave rise to the estimates of how
12 we thought the basic level of new forests would
13 develop. We move into --

14 Q. And the stocking change, I
15 understand, in that second level again from the 50 --
16 the original 50 to 60 over the age of that particular
17 type of forest?

18 A. Correct. There is mensurational
19 evidence out of North America in general that stocking
20 levels increase over time. Again, the FRI data
21 themselves, if analysed, show the same sort of
22 reaction. So we were corroborating with analysis that
23 this assumption was not invalid.

24 Plantations. Plantations, we did chase
25 around and try and find what available literature there

1 was within Ontario and it primarily exists. We have
2 seen evidence for red pine in the previous panel.
3 There is some limited data in white spruce, primarily
4 in southern Ontario; some of the lake states have
5 similar sorts of data.

6 The estimate was made - we are talking
7 still of jack pine and spruce, that is primarily where
8 we are at - but we thought we would be primarily
9 planting on the better sites, so we went into the yield
10 table with a mix of site class 1 and site class 2 and,
11 again, an improved stocking level.

12 And the SOARS data, if you analyse the
13 SOARS data in comparison to the normal yield table,
14 what are the levels of stocking, bears out that that
15 assumption that the plantation will go typically from a
16 60 to 70 per cent stocking over time is echoed by some
17 of the results that come out of SOARS.

18 So we are using whatever data we have got
19 to corroborate that these assumptions that are made,
20 and they are assumptions, are as valid as we can
21 estimate.

22 Lastly, we move to the elite of which we
23 do, and in the model there is none. But the
24 assumption, again, was we would almost certainly plant
25 the most productive sites and we would certainly pay

1 attention to making sure they lived. And so we took
2 site class 1 and we have taken stocking levels from 70
3 to 80 per cent. So the words on page 265 and page 266
4 essentially echo that description.

5 Q. Dr. Osborn, in the description of the
6 four different types of new forests, a rotation age was
7 referred to as to being what the stocking would be.

8 For instance, if we go to intensive
9 plantations, you have indicated on page 266 that it was
10 assumed that the stocking levels would progress from 60
11 per cent at age 20 to 70 per cent by rotation age, 60
12 years?

13 A. 60 years was the rotation for
14 softwoods for plantations that were used in the model
15 both in '82 and in the analysis that we have done
16 recently.

17 Q. And you have used several rotation
18 ages -- or described rotation ages for those four
19 levels of forest in this document?

20 A. That's correct.

21 Q. Can you advise whether the rotation
22 age has an effect in terms of the rate at which your
23 old forest is depleted?

24 A. No, the rotation age is in there, as
25 I mention, for two reasons; one of them being the

1 calculation of the maximum allowable depletion; the
2 second, to give some inference - given that we know the
3 age of where the stands are being cut - of: Are the
4 stands being cut close to, above, below rotation age.

5 Q. You indicated as well that certain
6 assumptions were made in terms of yields that could be
7 expected from the various levels of forestry and a
8 group of experts discussed this matter at some length.
9 And can you just advise whether you were one of those
10 experts?

11 A. Yes.

12 THE CHAIRMAN: Dr. Osborn, was this model
13 developed based on any other models world-wide, or was
14 this something that Ontario came up with completely on
15 its own?

16 DR. OSBORN: The former, Mr. Chairman.
17 In 1977 we borrowed a model that had been developed in
18 New Brunswick which was called WOSFOP, and I described
19 in yield regulation. That was brought to Ontario
20 essentially in 77-78 and that was used for the maximum
21 allowable depletion calculation with some modifications
22 for Ontario.

23 The concepts and the ideas and the use of
24 that model, the understanding of that model, what it
25 was doing, was very close to what we were looking for

1 with these analyses in 1982 which really is an analysis
2 of what the Production Policy was all about.

3 And so we took that maximum allowable
4 depletion basic set of software and we modified it to
5 primarily let us look at the silvicultural implications
6 of these four different kinds of new forests.

7 We stripped away a lot of the things that
8 were in the MAD depletion to bring the data up to date,
9 but primarily, the maximum allowable depletion model,
10 if you may, remember, grew the new forest the way the
11 old forest grew. We talked about that being a
12 conservative approach for certain reasons.

13 In the Production Policy we deliberately
14 wanted to look at what would happen if we married and
15 changed the mix of silvicultural investments. So we
16 looked at four different kinds of new forests. So we
17 changed the software to portray what may happen to
18 those four different kinds of new forests. So the
19 model is essentially a modification on a modification.

20 Now, just to pursue your question. That
21 set of models, that class of models is used at this
22 point in time in certain of the Canadian provinces,
23 simulation models primarily thought both yield
24 regulation and, as we have used it here, what it
25 questions. And simulation tools using this kind of

1 approach have been used now, as far as I know, in every
2 single province. There is also a version very similar
3 to this out of the U.S. Forest Service.

4 There is nothing very exotic about them,
5 they are all basically they take an age-class
6 distribution and they walk it through time.

7 THE CHAIRMAN: The reason I was asking
8 was, I wondered whether there was any experience that
9 anybody else had gained as to the reliability or lack
10 of reliability of models such as this.

11 DR. OSBORN: The difficulty, Mr.
12 Chairman, really is the calibration, the assumptions
13 most of us know a lot about and we realize what's
14 happening with those. The inherent difficulty with any
15 simulation model of tomorrow is finding numbers that
16 are as reliable as possible for predicting tomorrow.

17 Most of us, again - this is again not
18 typically true of forestry only - most will say let
19 history repeat itself as opposed to approximation.
20 This is true of many things.

21 So in simulation models, particularly
22 this is often the way. You take the past data and you
23 project what is going to be echoed in the future and
24 you start from that as a basis and then you start
25 adjusting those values to see whether the impact is

1 large, small and when it happens.

2 So I can go to the U.S. Forest Service
3 and say: What have you done and how have you found
4 these work. Well, they they work fine if the past is
5 repeated in the future. But as soon as something
6 traumatic happens, the change of oil price in 1974, it
7 plays merry hell with any projections based upon
8 history.

9 And the difficulty in forestry - and to
10 come back to your idea about experience - the
11 difficulty in forestry is the time horizon we have to
12 project is far longer than the average modeler even
13 dreams of.

14 If we run this model for 40 years, you
15 won't see any impact on the new forest whatsoever. You
16 don't even get into the new forest, they are still
17 cutting in the old. See, you have got to run the model
18 40, 50, 60, 70 years into the future before you start
19 to impact your actions of today, and this is a real
20 problem inherent in forestry.

21 THE CHAIRMAN: Presumably, no modeler
22 today will be around to find out if he is right or not,
23 if you project it on that kind of time frame.

24 DR. OSBORN: Personally, Mr. Chairman, I
25 won't be. The age of death we have moved up already,

1 okay.

2 MR. FREIDIN: Out you go.

3 DR. OSBORN: The fall back, in all
4 honesty, in all seriousness, though the comment was
5 made at the end of Panel 3 is that one keeps coming
6 back every few years to refine the calibration, refine
7 the information.

8 To come back to the question Mr. Martel
9 asked: When and how will you fold that barren and
10 scattered that you have actually got out there back
11 into the model.

12 Well, over time we will learn more
13 realistic about when and how that actually happens.
14 And as that information improves, the model will become
15 closer and closer to realism.

16 Another comment that also is important -
17 we have made before - is the next 5, 10, 15, 20 years
18 are probably far better estimated than 70, 80, 90 years
19 down the road. So we need to redo it periodically.

20 A couple of other assumptions inherent in
21 the model. In the demand side, particularly when we
22 think of the new forest, there is absolutely nothing in
23 this model that speaks to volume coming from thinning.
24 That's an intermediate form of cutting. And yet in the
25 management of the new forest, it is quite possible that

1 thinning may well become an operation of some
2 importance. The model doesn't speak to that at all.

3 It assumes the yield comes from a single
4 cut and the trees revert -- the area reverts to barren
5 and scattered.

6 MR. FREIDIN: Q. And the effect of
7 that -- do you know what the effect of that can be
8 assuming that it happened?

9 A. You may well pick up from thinning 50
10 to 100 to 150 per cent of that final cut in volume;
11 i.e., you might get half as much again as that final
12 cut, the same amount again or even up to one and a half
13 to twice that amount. It just depends how often you
14 thin, how frequent, the magnitude of the thinning,
15 whatever the thinning regime is, range.

16 Q. And the model ignores the possibility
17 of that happening?

18 A. At this point in time the model is
19 still quite simple and ignores that part entirely.

20 Again, the assumption I just made
21 mentioned that history repeats itself. In the fire
22 loss and pest loss, we have had to assume that what's
23 taken place in the past - and, again, difficulty of
24 how far back in the past you go - is echoed in the
25 future.

1 Now, with one proviso, and I will make
2 the proviso. One of the pest losses is the budworm and
3 in the budworm it tends to happen in spasms.
4 Periodically there is an outbreak; it is not a
5 continuous thing. All of sudden it blooms up, causes
6 consternation for a period of time and then the
7 population dies down.

8 And so we treated that in the model in a
9 very deliberate fashion. The spruce budworm's host
10 primarily is balsam fir. And so what we did in the
11 model is over the first 20 years in the model we just
12 took the balsam fir completely out of the model. The
13 impact of spruce budworm in this model is goodbye
14 balsam.

15 Now, again, echoed in real life there are
16 parts of Ontario you can fly over right now where you
17 won't find any balsam trees because the spruce budworm
18 has taken them all away. That's how we have modeled
19 it. Over the first 20 years in the softwoods, the
20 balsams have all -- the balsam working group, component
21 of that sort of covertime, has all been taken out
22 completely.

23 Q. And that is taken out of the old
24 forest?

25 A. It is taken out of the old forest and

1 so the balsam fir working group component has literally
2 got taken away.

3 MR. MARTEL: How would you use thinning?
4 I want to go back to a short question.

5 How could you use thinning as a process
6 for getting fiber in a softwood forest or mix? Because
7 don't we just now take it in large clear cutting
8 usually, how would you harvest that?

9 DR. OSBORN: In the model or in real
10 life, Mr. Martel?

11 MR. MARTEL: In real life.

12 DR. OSBORN: In real life, fine.

13 The standard operation in much of
14 southern Ontario is red pine plantations. At year 30,
15 year 35, they go in, they take out every third, every
16 fourth, every ninth, whatever it might be, whatever the
17 regime, row completely, every single tree gets cut,
18 gets taken them to saw mill, pulp mill, whatever the
19 case may be. Standard practice in softwood plantations
20 almost world-wide.

21 And the simplest way literally is to take
22 out every third row, every fourth row literally, and
23 the rest of the trees grow, more space, they grow
24 faster. And that volume, that thinning, is in fact
25 trucked to the mill, saw mill, pulp mill and used.

1 Now, you can go back after year 30 and
2 year 40 maybe and take out every third row again. So
3 the thinning literally can be realized three or four
4 times before that final cut takes place in real life.
5 This is a standard practice in many plantations in
6 many parts of the world. It is standard practice at
7 the moment in the red pine plantations in southern
8 Ontario.

9 If you are asking, the next question:
10 How will it happen in the boreal? Stands right now in
11 Kirkwood, all right, Blind River District, of a certain
12 age, that in terms of size, the trees certainly could
13 be thinned. In terms of the dollars and cents and the
14 economics of the operation, in terms of is it cheaper
15 to go and get the wood that way rather than clear cut,
16 debateable. You need technology, you need machinery,
17 you need a skill to make sure you don't damage the ones
18 that are being left behind.

19 There is a whole range of factors
20 involved in: When do I thin versus when do I clear
21 cut. It's technically possible in the boreal today.

22 MR. MARTEL: Yes, but economically it
23 becomes a serious problem for the industry; would it
24 not?

25 DR. OSBORN: Yesterday, but how will that

1 change over time. And this is really why, in the
2 model, it is so hard to speculate on how we may look at
3 that new forest.

4 I made mention right back at the
5 beginning, the model takes the old forest completely
6 and then the new. In real life we know that won't
7 happen, in real life there will still be some old
8 forest left out where it pays to go and cut in the new
9 forest.

10 It is happening right now. There are
11 stands being harvested right today that are really new
12 forest. There are stands being harvested, literally
13 not very far from here, that have been cut once already
14 and are now second growth.

15 Even before -- and so we are cutting 40,
16 50, 60-year olds, rather than go and cut the 120-year
17 old. And that will become an ever increasing real life
18 question the further into time we go.

19 MR. FREIDIN: Q. Just one question, in
20 terms of the -- maybe this doesn't come into play in
21 the model. When you are talking about a yield off one
22 of these areas that you have thinned you gave a
23 percentage that it might increase the yield.

24 Are you referring to the yield you would
25 expect at rotation compared to what you would get in

1 rotation had you not thinned or are you talking --
2 does the figure include the volume that you take out
3 during the thinnings?

4 DR. OSBORN: A. The first way you
5 described. If you thin a stand, the typical evidence
6 is at the end of the rotation for that thinned stand,
7 the actual growing stock of the thinned stand may well
8 be in excess of the original unthinned stand.

9 We talked in Panel 3 with the red pine
10 plantations and we compared the yield table of natural
11 stands, unthinned red pine, site class 1, we compared
12 those data with the thinned yield table and we
13 demonstrated the actual growing stock values, thinned
14 plantation versus the unthinned natural stand.

15 The plantation had a higher yield in the
16 same number of years, higher yield, higher absolute
17 growing stock than the unthinned stand. The thinning
18 yield didn't enter that equation at all, that's a
19 bonus.

20 The thinning process literally takes away
21 the stand, the trees that would naturally die, and you
22 can realize the volume from those. You gain something
23 almost from nothing, if you like. But as Mr. Martel
24 pointed out, dollars and cents in extraction, fair
25 comment.

1 Another couple of assumptions right at the
2 end. In the regeneration we talked of this pool of
3 barren and scattered, the pool that came from the
4 cutting in the five years, the pool that came from the
5 fire, the pool that came from the pests. The model
6 makes the assumption that that entire pool of barren
7 and scattered is all equally available for
8 regeneration.

9 Now, again, visualize: Would the areas
10 that are cut look the same as the areas that were
11 burnt, will look the same as the areas that have been
12 eaten. We know in real life they won't look the same,
13 there is different inherent costs and difficulties in
14 regenerating those. The model ignores all of that and
15 says: Hey, you are barren and scattered, you are in
16 the pool, you are available for regeneration.
17 Simplification.

18 And the last comment I will make on the
19 assumption is on the assignment ratio, that's the idea
20 that I plant but I doesn't necessarily grow as a
21 plantation. The assignment ratio is only entered once.
22 I plant a hundred hectares, five of those hectares will
23 grow as a seeded area, they won't grow like the
24 plantation I had hoped they would.

25 That five hectares to grow as a seeded

1 area and will continue to grow as a seeded area for the
2 whole rest of the run, there is no reassignment in the
3 model, I'm assigned once and once only right up front.

4 Again, in real life, we know this
5 changes. The stands vary in terms of their growth
6 rate, as to whether they improve or decrease over time.
7 Simplistic in how we approach this.

8 So there is a set of assumptions inherent
9 in the mechanics of the model.

10 Q. Dr. Osborn, can you advise as to your
11 opinion as to how useful this model is when you have a
12 number of the assumptions as you have described not
13 based on reality but something else?

14 A. Start off the obvious, I am biased
15 and prejudiced. The usefulness of the model? Again,
16 come back to the video.

17 You can do simulations and you can look
18 at the implications of the "what if" questions and you
19 can look at the magnitude of what happens if I change
20 and vary these different variables quickly without
21 spending a great deal of money in real life.

22 You can zero in on which factors seem to
23 be most important, which factors are causing me anguish
24 short-term, which factors are causing me anguish
25 long-term, which factors really contribute to success.

1 Those are the factors I really need to refine the data
2 and assumptions about.

3 So the model, in turn, acts as an
4 educational device in looking at what I am doing, what
5 I might do, and which parts of what I am doing are
6 really key. Should I, should I not improve the fire
7 protection. If I do, what will be the impact on the
8 timber supply.

9 Now, to come back to your comment about
10 they don't echo reality. They echo reality to the best
11 extent that we can at the moment without making the
12 model incredibly complicated so we can't understand
13 what the outputs mean. A degree of interpretation has
14 to go on in here to make sure we don't get carried away
15 with mechanics and black boxes.

16 So in any modeling exercise, it doesn't
17 matter whether it is forestry or anything else, you try
18 and echo as best you can real life, realizing how far
19 from reality you have walked and keeping that --
20 keeping cognizance of that all the time.

21 But I honestly believe that if you don't
22 do this planning but do what you think is right without
23 any forethought, you can inherently spend a great deal
24 of time and effort and money with limited resources
25 that might come back to shock you.

1 So rather than go gut feel, let's use the
2 tools and experience that we have got as wisely as we
3 can. Simulation, as a technique, is widely used in a
4 wide range of industries. Let's not dismiss a possible
5 useful tool.

6 THE CHAIRMAN: Dr. Osborn, is there a
7 manual that accompanies the model so that everyone
8 using the model or interpreting the model understands
9 exactly what assumptions you use, because I could
10 imagine that the model might be criticized by any
11 number of people but their criticisms may not be
12 predicated necessarily on the particular assumptions
13 that were made by those running the model.

14 In other words, you seem to know what
15 assumptions were made and what areas are sort of
16 questionable areas in terms of the output because you
17 are involved in putting the model together and, I
18 assume, are involved in running the model from time to
19 time.

20 What about somebody else who has not had
21 your familiarity with the model; how do they find all
22 this out about the model?

23 DR. OSBORN: The reason I hesitate, Mr.
24 Chairman, there is two answers to your question. There
25 is a manual, and I was hesitant to say there was

1 because the manual is primarily the mechanics of what
2 do I put in, how do I put it in, what do I get out,
3 what does it look like, and it doesn't have inherently
4 inside there what you are really asking about is all
5 the assumptions I have just alluded to,

6 It is a mechanical of: How do I run it
7 but not how to I interpret it. That is why I was
8 hesitant even to offer that as a solution.

9 The only answer at the moment is for one
10 or two or three people in the Ministry, who are
11 somewhat familiar with the design and mechanics of it,
12 to literally be party to the user and in all honesty -
13 we have not so much kept it under wraps - but we have
14 kept it that if Mr. Gordon, as Mr. Gordon came along
15 from the field wants to run it, we sit down with Mr.
16 Gordon and go through. He brings his practical
17 experience as to this does or does not make sense and
18 we, in turn, explain the assumptions in the model and
19 the team ends up with what does it mean.

20 At this point in time that is where we
21 are at.

22 As you can imagine writing a textual
23 manual that explains what I have just glossed over very
24 quickly in the last half an hour is very difficult.
25 What we have done at the moment, very deliberately, is:

1 If you wish to run it, it is easier to explain
2 interactively orally than it is to give you a book. It
3 might not seem like a very pragmatic way of doing
4 business, but at this point in time that is the way we
5 have handled it.

6 THE CHAIRMAN: I guess the three of you
7 better not disappear.

8 DR. OSBORN: We are trying to spread the
9 word as fast as we can. Okay.

10 Just to answer that, though, there is -
11 and the Ministry has done for the MAD calculation,
12 which is the same sort of model but not quite the
13 same - written a manual and workshops to field
14 foresters of how to do use it and how to understand it
15 and interpret it.

16 Now, my reaction with this model is:
17 This model, likewise, should be distributed to users
18 and if that is done, inherently it is going to have to
19 go with both an interactive dialogue, tutorial, a week
20 seminar, whatever the case may be, and a set of words
21 to remind the user when the experts walked away what it
22 is all about. No shadow of doubt there.

23 MR. MARTEL: Does industry have this
24 material? I mean, certainly they are big players in
25 this game.

1 DR. OSBORN: Two answers to your
2 question, Mr. Martel. The maximum allowable depletion
3 version of AWOSFOP was made available and offered to
4 forest industry as a piece of software, as a tool, and
5 it has been taken up by one or two members of the
6 industry complete with explanation and dialogue and the
7 words that go with it.

8 So, yes, forest industry has been made
9 aware of it, given it, shared with it and they use it.
10 Now, this particular version as I described at the
11 moment they have been made aware of, certainly some of
12 them have been made aware of, in terms of professional
13 communication and dialogue.

14 Yes, they are a very interested party and
15 in terms of chasing some of the data that were the
16 inputs, inevitably we have talked to industry as to:
17 What is your feeling, what is your set of numbers that,
18 for example, weren't in projected demands. Yes, they
19 are a very interested party no doubt about it, as are
20 perhaps other people.

21 And, for example, the foreign aviation
22 people, just to pursue your line of discussion, are
23 interested in what sort of level of fire protection
24 should the Ministry practice as it impacts on timber
25 supply. So there is another group of people that are

1 interested in this kind of modeling. In fact, the fire
2 and aviation people, not only in the Ministry but also
3 in the federal government have had similar input and
4 have had a similar kind of modela to that which I just
5 described.

6 So there is range of players who are very
7 interested in what is inherently inside this.

8 MR. FREIDIN: Q. Now, Dr. Osborn, you
9 were talking about, I think you said the AWOSFOP
10 program?

11 A. Yes.

12 Q. Which was shared with industry?

13 A. Yes, that set of software was offered
14 to the forest industry.

15 Q. All right. There is an AWOSFOP model
16 that is used during the MAD calculations.

17 A. That is the one that was offered and
18 has been shared with forest industry.

19 Q. That is the one you described during
20 Panel No. 3?

21 A. Correct.

22 Q. This particular model is called what?

23 A. Production Policy Version of AWOSFOP.

24 Q. All right.

25 A. We were weren't very imaginative.

1 Q. So the model that you have described
2 in your evidence today is different than the model you
3 described in Panel 3 which is used for the MAD
4 calculation?

5 A. Yes. The evidence-in-chief on page
6 264, the title is AWOSFOP for Production Policy. This
7 version of the model that I have just described is
8 different from, in some respects, the AWOSFOP software,
9 the AWOSFOP model that is used for the MAD calculation
10 procedure in Panel 3. Some parts are very similar,
11 some parts are quite different.

12 Q. And could you briefly highlight what
13 the differences are?

14 A. Yes. There are really two key
15 differences, two key differences. The first is that
16 the version for maximum allowable depletion has, in the
17 front of it, a lot of processing of bringing the FRI
18 data up to date. What do I mean mean by that. I mean,
19 it let's you enter changes that have happened since the
20 FRI data that you want to enter into the model.

21 That MAD calculation version is typically
22 used, initially used for forest management agreements,
23 the date of the signing of the forest management
24 agreement was something that was decided completely
25 outside the control of the foresters and I was given

1 the task of having an allowable cut or the maximum
2 allowable depletion for the FMA on the date of the
3 signing and I couldn't do an instantaneous FRI on the
4 date of the signing.

5 And so that of AWOSFOP spent a lot of
6 time and effort in getting the existing FRI, whether it
7 was one year old, five years old, ten years old, up to
8 the date of the signing and then the calculation
9 determined the maximum allowable depletion for
10 five-year periods.

11 That was the first. This particular
12 model doesn't have all that bring that data up to date
13 jazz in the front of it and doesn't have a maximum
14 allowable depletion calculation used as a control
15 mechanism. That is the first difference.

16 The first one, the MAD is MAD controlled.
17 The second one is depletion driven. That is the first
18 major difference.

19 Q. The first one being the AWOSFOP for
20 MAD?

21 A. The AWOSFOP for MAD.

22 Q. And the second one being the AWOSFOP
23 Production Policy?

24 A. For Production Policy. I obviously
25 should coin a new name for that. I am tempted.

1 The second major difference between the
2 modes1. The maximum allowable depletion model predicts
3 the new forest to grow as the old forest, one kind of
4 old forest. The growth curve for the new forest in the
5 maximum allowable depletion version is the yield curve,
6 the growth curve of the old forest. And we spent some
7 time explaining that was a conservative estimate and as
8 a rationale in Panel 3 as to why we had done that, for
9 yield regulation.

10 The Production Policy model, the second
11 kind, was deliberately written to look at what might
12 happen if we did bury the amounts of silviculture. The
13 intent in that model was to look at the different
14 levels of silviculture investment.

15 What happens if you seed versus plant,
16 what happens if you seed a lot and plant a little. Mr.
17 Armson's earlier evidence with SOARS indicates there is
18 a difference between seeding and planting in terms of
19 reaction and result.

20 Ms. Koven had a series of questions about
21 natural regeneration provision plantations, what have
22 you. Those sorts of concepts, those sorts of ideas
23 were why the second version, a Production Policy
24 version was written. So the second version has four
25 kinds of new forest. Four different curves that aren't

1 the same as the old forest curves.

2 So two major differences: The method of
3 control, what is driving the model and are we looking
4 at one new forest, or are we looking at four new
5 forests.

6 Q. And one perhaps last question, Dr.
7 Osborn. You said that in the evidence in Panel No. 3,
8 the reason that the AWOSFOP model for calculating the
9 maximum allowable depletion, it grew the new forest at
10 the old at the rate of the old forest and you have
11 indicated that in Panel No. 3 a rationale for that was
12 given.

13 I am not too sure how many people might
14 remember that one little piece of evidence, so could
15 you just advise what that rationale was?

16 A. The rationale primarily said: We
17 haven't a long-term track record of how the new forest
18 will grow, we don't have actual long-term for boreal
19 species growth and yield values of the new forest.

20 We think they will grow better than the
21 old forest, but let's be conservative, let's put the
22 new forest in growing as the old forest, let's repeat
23 what we have had in the past. Let's take no cognizance
24 of silvicultural effort increasing those yields,
25 because we have no hard evidence, long-term, that is

1 going to be a reality. And we went into an explanation
2 of what the red pine yield tables in southern Ontario
3 showed. That was the rationale that was implied in the
4 yield regulation version.

5 MR. FREIDIN: Mr. Chairman, I know it is
6 not six o'clock. I would ask that we adjourn for the
7 day, I guess, for a number of reasons. I think it has
8 been a long day for many and, more importantly, Mr.
9 Gordon -- well, Mr. Gordon and I had a discussion about
10 the presentation of his evidence. It is going to be
11 getting into this sort of -- it is going to get into
12 the model with some actual numbers and an explanation
13 of the assumptions. And I think a discussion of the
14 inputs and outputs, sort of, all as one package would
15 be more understandable and be beneficial to everybody.

16 THE CHAIRMAN: Okay. We were planning to
17 start tomorrow at 8:30, if that is acceptable, and we
18 will be going along until we have to break around, I
19 think it is 2:30.

20 I want to make an announcement at the
21 same time. I understand that the hotel is no longer
22 going to offer the bus service due to lack of
23 participation. Evidently there is only two or three at
24 the maximum that use it and it is costing \$90 a day or
25 something at a time. So that service is going to be

1 abandoned and everyone will be on their own getting to
2 and from the airport.

3 The second thing I would like to point
4 out at this time is: How long do you think you will be
5 in the direct examination for this panel, bearing in
6 mind that we will only have the four or five hours
7 tomorrow?

8 MR. FREIDIN: I don't think we will
9 finish tomorrow. I think we will run over until the
10 first day we are back but I think we will finish in the
11 first day we are back.

12 THE CHAIRMAN: And with respect to
13 cross-examinations, I know they are not complete yet in
14 terms of the direct, but Mr. Tuer, do you have any
15 felling for how long you might be?

16 MR. TUER: Perhaps a couple of hours
17 maximum.

18 THE CHAIRMAN: And Mr. Castrilli?

19 MR. CASTRILLI: Mr. Chairman at this time
20 I would estimate three days.

21 THE CHAIRMAN: Three days. And we
22 promised Mr. Edwards that he might have two or three
23 hours on Thursday to deal with cross-examination of
24 both this panel and a couple of previous panels.

25 And, Mr. Campbell, what about your side?

1 MR. CAMPBELL: I expect not less than a
2 day and not more than two days, depending on, of
3 course, the answers to the questions.

4 THE CHAIRMAN: All right. Okay, so it is
5 obvious we will not finish the cross-examinations next
6 week, so that we will just proceed.

7 So you can finish off Monday or you
8 anticipate you will finish Monday. I guess then, Mr.
9 Tuer, you will put in your two or three hours and then
10 we will go to Mr. Castrilli.

11 And will it be a problem if we break up
12 your cross-examination in any way, Mr. Castrilli, to
13 allow Mr. Edwards to complete his?

14 MR. CASTRILLI: No, I am content to
15 permit that.

16 THE CHAIRMAN: Okay.

17 MR. CAMPBELL: Mr. Chairman, if my
18 calculations are right - my mad calculations are
19 right - it sounds as if I won't get on next week, if
20 the estimates are at all realistic.

21 It would be convenient if I could plan
22 for that as opposed to having to always assume the
23 worst as one does in these situations. With the
24 Board's permissions, given the estimates that we have,
25 I would like the Board's permission to plan not to do

1 my cross-examination next week, but some point the
2 following week.

3 THE CHAIRMAN: Well, barring a complete
4 collapse on Mr. Castrilli's part, I think you can
5 probably plan on that.

6 MR. CAMPBELL: The only other matter
7 then, Mr. Chairman. You asked question about a manual
8 for the policy, the AWOSFOP model. I would like the
9 opportunity this evening to talk to my friend Mr.
10 Freidin about what user guide or other information is
11 available in the use of the MAD AWOSFOP model.

12 And assuming that can be worked out, I
13 may have to revise my estimate of questioning,
14 depending on what I find out there. So I just would
15 like to caution the Board that my cross-examination,
16 that that is another variable in the assumption that I
17 have given you.

18 MR. FREIDIN: Can you tell me whether it
19 is going to get longer if I find something for you or
20 whether it is going to get shorter?

21 MR. CAMPBELL: It will get shorter.

22 MR. FREIDIN: I will cooperate with you
23 fully, you don't have to answer the question.

24 THE CHAIRMAN: All right. Just before we
25 break, ladies and gentlemen, there is a couple of other

1 matters I think we should discuss just for a moment
2 and; that is, the Board will have to review its earlier
3 rulings, but I seem to believe if we did not put it in
4 a ruling we at least discussed it, that by the, I think
5 it was the end of September, the parties were to
6 indicate to the Board where they might wish to adduce
7 their evidence, this is other than the proponent, what
8 location of the 14 locations that the Board planned to
9 hold hearings at throughout the province.

10 I think that was our intention that you
11 should have a feeling I would think, at least the
12 parties should have a feeling basically where they
13 would like to present their evidence at the appropriate
14 time, and if we did not make it in the form of a
15 ruling, I think we would like to put it on the record
16 so that you will give it some serious consideration.

17 This will be, of course, further down the
18 road, but we would like the ability for our staff to be
19 able to start looking into logistical plans as early as
20 possible, particularly if it turns out that several
21 parties plan to give their evidence at one of those
22 locations. I am thinking for instance as a southern
23 Ontario location, for example. We want to make some
24 arrangements and make some inquiries as to
25 accommodations and things like that.

1 So we would like you to consider by the
2 time we break at the end of September of each party
3 notifying the Board as to where they intend to adduce
4 their evidence.

5 The second thing is, is that I am not
6 sure whether or not, Mr. Freidin, the recent ruling
7 specified that executive summary should accompany
8 witness statements commencing with witness Panel No. 7
9 and I am not sure whether there is such a statement in
10 Panel 7. It was my understanding that the first six
11 panels, which at the time of that ruling, had already
12 been distributed would be free of that requirement but
13 starting with 7 onward they would require an executive
14 statement of not more than ten pages.

15 MR. FREIDIN: I cannot advise whether
16 there was such a statement with 7 or whether our
17 offices -- Ms. Murphy's understanding - she has been
18 dealing with these witness statements - was that it was
19 to start on 7, but you would like...

20 THE CHAIRMAN: I think it is far enough
21 down the road that if it was not part of the statement
22 itself, that you might consider producing one and it
23 will be distributed shortly, so that by the time we get
24 to 7 we have the advantage, particularly with 7. As
25 you know, it is three volumes and it would probably be

1 quite helpful full.

2 MR. FREIDIN: Okay.

3 THE CHAIRMAN: And that, of course,
4 requirement goes for all parties with all witness
5 statements commencing with the proponent's witness
6 statement No. 7.

7 THE CHAIRMAN: Mr. Castrilli?

8 MR. CASTRILLI: Mr. Chairman, in light of
9 the fact that we are sort of projecting time down the
10 road for next week and there after, I should simply
11 advise you that I plan on bringing a draft motion to
12 the Board's attention next week and I will be asking a
13 direction at that time. I would anticipate the motion
14 being argued later in the month. But it will have an
15 impact, depending on how things go, on what and when
16 constitutes our reassumption post the end of September.

17 THE CHAIRMAN: Sorry, what and when...?

18 MR. CASTRILLI: Whether we continue in
19 November or not will be the subject matter of my
20 motion.

21 THE CHAIRMAN: You mean whether the Board
22 continues or whether you continue?

23 MR. CASTRILLI: I won't be continuing
24 after September. It is whether the hearing continues
25 as currently scheduled to do at the beginning of

1 November and that will be the subject matter of my
2 motion. And I just raise it now without actually going
3 into the contents of the matter because...

4 THE CHAIRMAN: Are you suggesting that
5 the hearing continues at some other time?

6 MR. CASTRILLI: Yes.

7 THE CHAIRMAN: You are not suggesting
8 that it just winds up at the end of...

9 MR. CASTRILLI: No.

10 MR. CAMPBELL: Sounds good to me.

11 THE CHAIRMAN: In that case I will make a
12 ruling right away.

13 MR. CASTRILLI: But in terms of--

14 MR. FREIDIN: I will second it.

15 MR. CASTRILLI: --taking a very brief
16 amount of the Board's time some time next week to just
17 seek your direction with respect to how, where and when
18 the motion will be heard.

19 THE CHAIRMAN: I think it would be
20 advantageous if you would distribute a summary of what
21 your motion is to the other parties ahead of time so
22 that when we do argue it out, if that is the case, it
23 can be done on the basis of some of the submissions
24 that you are going to make.

25 MR. CASTRILLI: Yes. I will be making a

1 draft available hopefully next week and distributing
2 it.

3 THE CHAIRMAN: Very well.

4 MR. CAMPBELL: Mr. Chairman, I might note
5 that the requirement to indicate what location at which
6 parties intended to call their evidence was set out in
7 the Board's Procedural Directive for this hearing in
8 paragraph 3 and part (v) and actually required that
9 notice be given today. So I can take it that we have
10 an extension?

11 THE CHAIRMAN: Today. Well, I actually
12 looked for that, Mr. Campbell, and I could not find it,
13 and I think today is probably too soon. I am not sure
14 if anyone complied with that to date, and I think
15 September, the end of September would be ample time
16 because, obviously, we are going to be here unless Mr.
17 Castrilli succeeds for some time.

18 THE CHAIRMAN: Sorry, Mr. Tuer?

19 MR. TUER: Sorry, Mr. Chairman. I am
20 just wondering, was that to be a written notice or was
21 it notice that could simply be put on the record
22 orally?

23 MR. CAMPBELL: The ruling simply said:
24 all parties should indicate to the Board the location
25 at which...

1 THE CHAIRMAN: Yes. I think the parties
2 here can put it on the record orally. It was really
3 meant as well for the parties outside of this hearing,
4 so that we have a good indication from others that may
5 want to present evidence as to where they would like to
6 present that evidence.

7 MR. TUER: Well, I will get it off my
8 docket right now and tell you -- inform the Board that
9 I will be presenting my evidence here.

10 THE CHAIRMAN: In Thunder Bay?

11 MR. TUER: In Thunder Bay.

12 THE CHAIRMAN: Very well. Would anyone
13 else like to rush forward?

14 Well, why don't you consider it then
15 until at least no longer than the end of September.

16 Very well. We will adjourn until 8:30
17 tomorrow morning.

18 ---Whereupon the hearing adjourned at 5:20 p.m., to be
19 reconvened on Thursday, August 11th, 1988,
20 commencing at 8:30 a.m.

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